



**FY 2008 VIRGINIA
COASTAL ZONE MANAGEMENT
PROGRAM GRANT: TASK 47**

**George Washington Region
Coastal Technical Assistance Program**



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**FY 2008 VIRGINIA
COASTAL ZONE MANAGEMENT PROGRAM GRANT
TASK 47: GWRC Technical Assistance Program**

EXECUTIVE SUMMARY

The George Washington Regional Commission (GWRC) continued the provision of technical assistance to its member local governments in FY 2008 through an active program of planning coordination and training which included quarterly meetings of the region's local planning directors, as well as several other special meetings of geographic information systems (GIS) users and environmental planners in the region to learn from State agency speakers on a variety of informational topics.

GWRC staff worked with a committee of local government staff to develop, in consultation with the staff of the Virginia Chesapeake Bay Local Assistance Department (CBLAD), a cross-referencing tool used to document how and where each local government has chosen to address required measures in local development codes to reduce land disturbance, encourage native species and reduce impervious surface area as directed under the Chesapeake Bay Protection Act. Using this tool, the local committee developed a series of recommendations that encourage local governments to adopt a set consistent development definitions to achieve greater internal and intra-regional consistency in managing land development. Also, the committee noted existing inconsistencies between Virginia silviculture, agriculture and Chesapeake Bay regulations which hamper local governments' ability to protect the environment and mitigate the impacts of land development. The intergovernmental process and methodology that evolved from this effort has been recognized by CBLAD staff as a model for replication throughout the Chesapeake Bay watershed for local compliance with the Phase III regulations under the Chesapeake Bay Protection Act.

As a partner organization in the Virginia-sponsored "Virginia Green" program, GWRC initiated efforts to familiarize hotels in the Fredericksburg area with this voluntary environmental stewardship program and encourage local enrollment to promote "eco-friendly" business practices in the local hospitality industry.

Finally, in support of program elements of GWRC's coastal zone management focal area grant (Task 12.02), the GWRC staff performed additional data collection and scenario testing in support of the demonstration pilot to introduce the use of Community Viz as a planning tool to complement the update of local comprehensive plans in the Town of Port Royal and King George County with greater consideration of the build-out potential of existing zoning and the consideration of environmental data in the determination of an environmental suitability plan for development.

Product #1: Report on Local Government Coordination and Training Program

Quarterly meetings were held with local government Planning Directors throughout the year. Additionally key local government development review staff and GIS staff participating in a couple of training sessions.

Quarterly meetings with local planners were designed to:

- a. provide information to localities about state/federal environmental initiatives,
- b. solicit input & comment from localities on state/federal initiatives,
- c. provide a venue for state environmental agency access to local planning staff, and
- d. encourage the exchange of information between local planners regarding current planning topics in the region.

Workshop topics included:

- a presentation by the staff of Virginia Institute of Marine Sciences (VIMS) on Integrated Shoreline Management (Appendix I-A)
- a series of presentations to local planners and GIS staff by DEQ, VCU & DCR staff on Virginia's environmental geographic information systems (GIS) (Appendix I-B)
- field tour of Low-Impact Development (LID) measures in Stafford County (Appendix I-C)

Deliverable Products: One hardcopy and one digital report summarizing issues discussed and outcomes of quarterly local planners meeting and training workshops, and may include supplemental materials such as handouts created or copies of presentations given. The report, handouts, presentations and meeting minutes will be stored on the GWRC website for public access.

Meetings & Training Workshop Documentation

October 1, 2008: Quarterly Planning Directors' Mtg

Attendance:

Wanda Parrish, Spotsylvania Co Planning Director
Jeff Harvey, Stafford Co. Planning Director
Ray Ocel, City of Fredericksburg Planning Director
Jeff Harvey, Stafford Co Planning Director

Alex Long, Port Royal Planning Commission Chair
Steve Manster, Bowling Green Manager & Planning Director
Kevin Byrnes, GWRC Director of Regional Planning

Agenda:

1. Revisions to Affordable Housing Task Force (AHTF) Report
2. Local Application Intentions for DHCD's Neighborhood Stabilization Program
3. Wrap-up Discussion on FY07 CZM Web Browser and Aerial Animation Project
4. Discussion of FY08 Projects and Local In-Kind Match Accounting Procedures
5. Adding Community Viz User Group in with Regional GIS Users Group
6. Local Planning Issues Roundtable
7. State Environmental Agency Reports (if any)

Outcomes:

1. Planning Directors noted areas of concern in local review of the AHTF report, particularly comments related to local planning policy in Stafford Co.
2. All eligible communities but King George Co appear to be willing to support the NSP project.
3. Staff demonstrated the final collection of data files and how these can be used by the general public, using ArcGis Explorer to see spatial data with public domain imagery.
4. Local government staff agreed support, as much as possible, the CZM-funded projects with in-kind staff work and meeting attendance. GWRC staff distributed a spreadsheet for tracking a calculating local government staff time contributions to CZM-funded projects.

5. Planning staff expressed interest in monitoring the use of Community Viz to support local planning work.
6. Directors shared news of development activity trends in their community, noting the continued downturn in development permit activity and the political tensions around the completion of local Comprehensive Plan Updates.
7. No state agency staff were in attendance.

December 3, 2008: GWRC GIS User Group Mtg

Attendance:

Dr. Stephen Hannah, UMW Geography	Phil Brown, Fredericksburg Public Works
Dr. Brian Rizzo, UMW Geography	Angeline Pitts, Caroline Co Planning
Dave Capaz, Stafford Co GIS	Kevin Byrnes, GWRC
David West, Spotsylvania Co GIS	Laurel Hammig, GWRC
Kyle Conboy, King George Co GIS	Brittany Baker, GWRC

Agenda:

1. UMW GIS Certification program updates and GIS internships (Drs. Hannah & Rizzo, UMW)
2. Local GIS data coverages & data gaps & update schedules (local staff)
3. Tracking & mapping home foreclosure data: Stafford case study (Dave Capaz, Stafford GIS)
4. Using DCR Blue & Green Infrastructure data to develop regional B&G infrastructure map as CZM project (Laurel Hammig, GWRC)
5. GW Community Viz demonstration projects in King George Co & Port Royal & interest in Community Viz User Interest Group (K Byrnes, GWRC)

Outcomes:

1. Local users interested in internship placements from UMW
2. Local staff learned about differences in layer nomenclature, update frequency, etc.
3. Stafford described a process of pulling data from County land records to produce maps of foreclosed properties.
4. Local GIS users discussed local data layers which might supplement state data but asked for more information about State spatial data sets.
5. Attendees expressed interest & support for CommunityViz User Group to share techniques of using the software program.

January 21, 2009: Quarterly Planning Directors' Mtg

Attendance:

Wanda Parrish, Spotsylvania Co Planning Director	Alex Long, Port Royal Planning Commission Chair
Jack Green, King George Co Planning Director	Steve Manster, Bowling Green Planning Director
Ray Ocel, City of Fredericksburg Planning Director	David Sacks, Deputy Director, DCR-CBLAD
Jeff Harvey, Stafford Co Planning Director	Kevin Byrnes, GWRC Director of Regional Planning

Agenda:

1. Progress on regional NSP program.
2. CZM Project Status Review (handout) & Local In-Kind Match Reporting for Oct – Dec 2008
3. Discussion of Possible Delay of Phase III Regulatory Review & Re-Programming GWRC Technical Assistance Work (Discussion with CBLAD staff: David Sacks, Deputy Director, DCR-CBLAD)
4. Suggested Opportunities/Topics for Future Planning Training

CM Webinar Opportunities:

- PLAN-135: Introduction To Smart Growth: <http://www.planetizen.com/courses/smartgrowth>
Course Access: 6 months Instructor: [William Fulton](#) Registration: \$99.00
AICP CM Credits: This course has been approved to provide 4 CM credits.

- TECH-330: The Virtual Staff Report -- Advanced Google Earth for Planners Webinar Access: 1 hour
Instructor: [Charles A. Donley, AICP](#) Registration: \$49.95

Date and Time: Tuesday, February 10, 11am PST/2pm EST

AICP CM Credits: This course is under consideration to provide 1 CM credit.

• TECH-260: CommunityViz Suitability: <http://www.planetizen.com/courses/tech260>
Webinar Access: 1 hour Instructor: [Charles A. Donley, AICP](#) Registration: \$49.95
Date and Time: Thursday, March 5, 11am PST/2pm EST
AICP CM Credits: This course is under consideration to provide 1 CM credit.

- Use of Coastal GEMS & Natural Heritage datasets in Green & Blue Infrastructure Mapping
- Other Ideas?

Outcomes:

1. Planning Directors expressed interest in NSP presentations to local Boards and City Council.
Local Actions:
 - City Council: Approved NSP agreement on Jan 13th
 - GWRC approval of NSP agreement & contract award to CVHC: Jan 26
 - AHTF Meeting: Jan 27th @ 8:30 am – Review NSP project
 - Caroline Co BOS consideration of MOU & NSP agreement
 - Spotsylvania Co BOS consideration of NSP agreement: Jan 27th
 - CVHC NSP application on Jan 30 or Feb 2nd
 - Stafford Co BOS consideration of NSP agreement: Feb 3rd
 - King George BOS consideration of NSP agreement: unknown
2. Planning Directors provided estimates of staff participation on various CZM-funded projects.
3. David Sacks, Deputy Director, DCR-CBLAD discussed with the Planning Directors the original premise of the Phase III development code review and the evolution of the program, suggesting that CBLAD staff was going to recommend to the CBLA Board that Phase III review not be mandatory, but rather used as a planning guide in the local compliance review process. Mr. Sacks emphasized the growing appreciation for focusing on regulatory outcomes, rather than holding all local governments to a common performance standard, regardless of size, location or environmental considerations.
4. Encouraged development of local staff training opportunities due to budget cuts which precluded any travel to conference and training sites.

January 28, 2009: Integrated Shoreline Management Training (Appendix A.1)

Speaker: Julie Bradshaw, Marine Scientist Supervisor (julieb@vims.edu)
Wetlands Program, Center for Coastal Resources Management
Virginia Institute of Marine Science
P.O. Box 1346
Rt. 1208 Greate Rd
Gloucester Point, VA 23062
Ph (804) 684-7894 FAX (804) 684-7179

Attendance:

Julie Bradshaw, VIMS
David Sacks, DCR-CBLAD
Adrienne Kotula, DCR-CBLAD
Dan Bacon, VMRC
Kevin Utt, Fredericksburg, Development Services
Michael Lott, Stafford Co, Planning Dept
James Staranowicz, Stafford Co, Planning Dept

Ann Baker, Caroline Co Planning Dept.
Ted Lambert, Caroline Co Planning Dept
David Nunnally, Caroline Co Planning Dept.
Jack Green, King George Co Planning Dept.
Alex Long, Port Royal Planning Commission
Laurel Hammig, GWRC
Kevin Byrnes, GWRC

February 26, 2009: GWRC GIS Users Group Training (Appendix A.2)

Speakers & Topics:

- Jennifer Ciminelli, DCR, VCLNA Overview;
- Nick Meade, DEQ, Coastal GEMS Overview
- Kristal McKelvey, DCR, Natural Heritage Data Overview & Data Browser

Attendance:

Jennifer Ciminelli, DCR
Nick Meade, DEQ
Kristal McKelvey, DCR
Doug Sheldon, Information Systems, Spotsylvania Co.
Sandra Palmer, Information Systems, Spotsylvania Co.
Mike Sienkowski, GIS, Stafford Co.
Erik Nelson, Planning, City of Fredericksburg

Alex Long, Planning Commission, Port Royal
Phil Brown, Graphics, City of Fredericksburg
Patricia Kurpiel, interested citizen, Stafford Co.
Heather Casey, GIS Coordinator, Fort A.P. Hill
David Lee, GWRC Senior Regional Planner
Laurel Hammig, GWRC Regional Planner
Kevin Byrnes, GWRC Director of Regional Planning

April 1, 2009: Quarterly Planning Directors' Mtg

Attendance:

Wanda Parrish, Spotsylvania Co Planning Director
Jeff Harvey, Stafford Co. Planning Director
Jack Green, King George Co Planning Director
Ray Ocel, Fredericksburg Planning Director

Al White, King George Co EMS Director
Alex Long, Port Royal Planning Commission Chair
Amy Howard, VDEM
Kevin Byrnes, GWRC Director of Regional Planning

Agenda:

1. Presentation by Dept of Emergency Management on Updating Regional All-Hazard Mitigation Plan
2. Outcome of Regional NSP Grant Applications, Next Steps
3. Progress Reports on GWRC's CZM projects:
 - Community Viz: Working with Town of Port Royal
 - Virginia Green: Plan to approach Expo Center and nearby hotels about Va. Green participation
 - Blue & Green Infrastructure mapping: GWRC updating VCLNA ecological core maps using update methodology jointly developed by DCR and RRPDC
 - Children & Nature Network Project: suspended to allow more development time on Community Viz demonstration projects
 - Local tracking of in-kind local match time: reminder to record & report staff time for meetings, staff research and travel time.
4. Distribution of proposed CZM grant projects for FY08 (Handouts)
5. Discussing Regional Support for Urban Forestry Grant Application (Due May 8, 2009)
 - Handout: Developing an Urban Ecosystem Analysis (Roanoke, VA example)
 - Handout: Va Dept of Forestry, Urban & Community Forestry Grant Announcement
6. Local Govt planning staff interest in AICP CM accredited training opportunities in Fredericksburg
7. Miscellaneous
 - DOE Energy Stimulus Block Grants (Handout)
 - Magnet Municipal Admin Records Management – free local demo offer
 - Legislative Initiatives: a) expanding enabling authority for local tree protection ordinance?
 - Green Govt Commission Sub-Committee Initiatives: mapping impaired waters, phosphorus and nitrogen loadings, etc.
 - Wall Street Journal: Effect of Foreclosures on Exurban America's Housing Market

Outcomes:

1. Planning Directors recommended referral of Hazard Mitigation Plan Update to public safety depts.
2. Region asked by DHCD to revise original proposal to make 2 proposals, each for \$2.5 million dollars.
3. Virginia Green: staff support transferred from DEQ to Va Tourism Council. Planning Directors expressed interest in seeing the impact of post-2000 development patterns on ecological core areas.
4. Staff expressed concern about in-kind match requirements to match grants with funding and staffing cuts occurring in local planning departments.
5. Planning Directors endorsed concepts of CZM proposals to conduct analysis of change in impervious area, regional tree canopy change analysis and estimation of environmental and economic costs.
6. Planning Directors expressed interest in regional information & offerings of AICP CM-accredited training.

July 1, 2009: Quarterly Planning Directors' Mtg

Attendance:

Wanda Parrish, Spotsylvania Co Planning Director
Jack Green, King George Co Planning Director
Jeff Harvey, Stafford Co. Planning Director
Ray Ocel, Fredericksburg Planning Director

Alex Long, Port Royal Planning Commission
Amy Howard, DEM
Kevin Byrnes, GWRC

Agenda:

1. Discussion of Phase III Development Review Project with DCR-CBLAD
2. Discussion of Regional Conservation Corridor and Green Infrastructure Project
3. Discussion of Regionalization of Caroline Cannery and complimentary "Buy Fresh, Buy Local" regional food initiative project
4. Discussion of Census Bureau's 2010 Complete Count Partnership Program

Outcomes:

1. Planning Directors expressed concern about working with appropriate local staff to develop report recommendations, noting the politically-volatile climate between local Boards of Supervisors and local Planning Commissions.
2. Continued interest was shown in the outcome of mapping project. Directors suggested including designated Urban Development Areas or urban utility service areas in juxtaposition with defined ecological core areas.
3. Community healthy food activist Elizabeth Borst told the group about the development of pilot "Buy Fresh, Buy Local" grant to install ETF equipment at local (Gordon Rd) farmers' market and the subsidy to encourage SNAP (food stamp) customers to buy fresh produce. Caroline Co Planning Director advised the group of the status of Caroline Co Cannery and Co desire to explore regionalization of this facility. The group agreed this was a good regional planning project to develop a comprehensive regional food initiative.
4. Planning Directors endorsed regional and local participation, offering to coordinate local census promotion initiatives with GWRC, if the Commission approved joining the census program.

September 30, 2009: Field Demonstration of Low-Impact Development Techniques (Appendix A.3)

Speaker: John Tippet, Executive Director
Friends of the Rappahannock

Attendance: Members of GWRC Green Earth Sub-Committee, including:

Patricia Kurpiel, Friends of Stafford Creeks
Dick & Chris Folger, Spotsylvania Co Committee of 500
Kevin Utt, Fredericksburg, Development Services
David Nunnally, Caroline Co Planning Dept.
Steve Hubble, Stafford Co. Development Services
Dr. Grant Woodwell, Univ. of Mary Washington, Dept of Environmental Science & Geology
Mr. Joe Brito, Stafford Co. Board of Supervisors
Laurel Hammig, GWRC

Agenda:

1. Visited 3 sites at the Stafford County Government Center:
 - a. Bio-retention Garden in Fleet Parking Lot
 - b. Bio-retention Area in Small Parking Lot Island
 - c. Filterra
2. Tour residential LID installation in Woodlawn subdivision
 - a. French Drain example
 - b. Bio-retention or 'Rain Garden'
 - c. Water Quality Swale

Outcomes: Arrange similar tours in other localities & contact local public school systems about implementing LID demonstration sites on school property.

PRODUCT #2

FINAL REPORT

Regional Coordination of Local Government Phase III Checklist Review

A Coastal Zone Management Program Technical Assistance Project

This project was funded, in part, by the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant # NA08NOS4190466 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



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Background Introduction

The Chesapeake Bay Preservation Area Designation and Management Regulations (Regulations) identify three “phases” of local government program implementation. Phase I consists of Chesapeake Bay Preservation Area mapping and the adoption of performance criteria in local ordinances. Phase II consists of local comprehensive plan elements. Phase III requires the 84 Tidewater local governments to review local land development ordinances, and if necessary, undertake revisions in order to ensure these ordinances adequately address the protection of the quality of state waters. The Regulations further require local governments to have provisions in their ordinances to ensure, that as land development occurs, three performance criteria are addressed: 1) land disturbance is minimized, 2) indigenous vegetation is preserved and, 3) impervious cover is minimized.

Phase III Program Development

Development of a program to review local governments for compliance with Phase III requirements began mid 2006 as CBLAD staff reviewed alternative approaches for addressing these requirements. This work resulted in a concept that was presented to the Chesapeake Bay Local Assistance Board in June 2007. This presentation included the approach of identifying possible provisions that could be found in local ordinances that are used to implement the three general performance criteria contained in the Regulations. That approach, endorsed by the Board, used a checklist of possible ordinance provisions along with the understanding that a minimum passing score on the checklist would be developed.

Following the June 2007 meeting, an advisory committee of local government representatives was convened to assist in developing specific questions for the checklist. During that time, input and detailed suggestions were also solicited from all 84 tidewater localities. The product resulting from that work was reviewed with the Policy Committee and Board at their meetings in November and December 2007.

During the time between December 2007 and November 2008, CBLAD staff evaluated local ordinances from several localities using two different versions of the checklist to gauge the extent to which these ordinance provisions were being used. The first round of testing was undertaken using a draft checklist that included more than 140 questions; the second round of testing used a refined checklist which included 68 questions. Throughout this time period, the checklist was continuously refined using input from the local governments, members of the local government advisory committee, the Center for Watershed Protection, (which conducted a comprehensive technical review of the checklist) and several environmental and development groups including the Chesapeake Bay Foundation, the James River Association, the Homebuilders Association of Virginia and a number of other interested local governments.

In late 2007 and spring of 2008 as GWRC was developing project proposals for CZM-supported local technical assistance, it was suggested by local government staff that GWRC coordinate local government responses to the pending requirement to review local land development ordinances. This approach anticipated that localities would be required to achieve a “passing score” in applying the checklist to local ordinances. As noted above, CBLAD plans to use the checklist continued to evolve between December 2007 and November 2008; consequently, work activity on this project was delayed waiting for CBLAD to determine the detailed plans for the Phase III checklist and how it would be used to guide local governments.

At the Chesapeake Bay Local Assistance Board’s December 2008 meeting, staff reviewed a revised checklist intended to be used to measure local government programs for consistency with Phase III requirements. That Checklist included three sections; Section A: Local Land Development Ordinance Requirements, Section B: General Performance Criteria Implementation Options and Section C: General Water Quality Protection and Improvement Provisions. As CBLAD staff explained at the December 2008 meeting, the intent was that these three sections would be used for the evaluation of local Phase III programs and that a minimum passing score would be required before a locality would be found consistent with Phase III.



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On June 15, 2009, the Chesapeake Bay Local Assistance Board approved a Phase III review approach that will assess the extent to which Bay Act localities are in compliance with these requirements. To assist local governments in reviewing local ordinances, the Board has developed two checklists. The [Plan and Plat Consistency Review Checklist](#) (Appendix A-1) will determine if a locality has addressed the six plan and plat provisions that must be contained in local ordinances, as they are specifically required by the Regulations. The [Checklist for Advisory Review of Local Ordinances](#) (Appendix A-2) will determine if there are adequate provisions to address the three performance criteria and contains numerous examples of requirements that may be contained within a locality's land development ordinances.

Over the next eighteen months, DCR staff will work with local government staff throughout the coastal zone to evaluate local ordinances and processes to determine the extent to which specific provisions exist to enable the locality to implement the requirements of the Regulations described above. Based on this review, localities may choose to modify ordinances and processes to address development standards that benefit water quality. The information gained from the advisory review will also be used by DCR staff during the next formal evaluation of the local Bay Act Program implementation that occurs approximately every five years. Through their involvement in this technical assistance project, local governments in the George Washington region have a significant head-start in sustaining their compliance with the Chesapeake Bay Act.

In anticipation of the CBLAD Phase III regulations requiring localities to achieve a "passing score" in applying the pending Phase III checklist to a review of local development ordinances, GWRC proposed through this CZM-funded technical assistance project to work with PD 16 local governments to develop regional recommendations for additions to or amendments of local development codes which would achieve greater consistency in streamlined and/or regionally-consistent (to the maximum extent practicable) local ordinances which would reflect greater compliance with Chesapeake Bay Phase III guidelines. There was also an expectation that local representatives might reach a consensus in recommendations on legislative or regulatory amendments which could facilitate better environmental management in the region.

Study Process

Research activity on this project was delayed for the first half of the fiscal year while CBLAD staff worked with a statewide Advisory Committee to finalize the Phase III checklist. CBLAD Deputy Director David Sacks met with PD 16 Planning Directors and GWRC staff on January 21st to discuss the direction of the Phase III review checklist development process. With reassurances from this meeting and follow-up discussions with CBLAD staff that the original intended scope of the project would still be relevant, GWRC invited local government planning and development staff to an inaugural project meeting that was held on May 21st. At this meeting, the local project committee selected a committee chairperson (Amber Forestier, Stafford Co) and agreed to:

- 1) a scope of work for the project,
- 2) a meeting schedule,
 - a. May 21: Opening Meeting
 - b. July 10: Complete local checklists & forward to GWRC, compute local scores & complete regional matrix
 - c. July 16: Second Phase III Committee Meeting
 - d. August 13: Identify short-comings/deficiencies of local ordinances & opportunities for recommendation for coordinated code revisions &/or legislative measures (e.g. tree protection ordinance authority like PD 8)
 - e. Draft regional CZM project report for Committee review: September 10th
 - f. Final report responding to Committee comments, Sept 30th.
- 3) support GWRC staff efforts to compile electronic copies of all pertinent development ordinances, including zoning, subdivision, soil erosion and sediment control, stormwater management, etc.; and



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- 4) work with the latest version of the Phase III review checklist to identify the code reference(s) where local governments address each checklist question.

Local government staff forwarded a completed copy of the local checklist response to GWRC for purposes of compiling a regional matrix of all the local code citations.

GWRC staff accumulated the collection of local ordinances and converted them to standard Word document format and cataloged the collection by ordinance type. After the regional Phase III matrix of code citations was compiled from local responses (see Appendix B), each code reference in the regional matrix was converted to a “hyperlink” that (when selected) automatically opens the cited document at the location of the cited section. The compiled regional matrix thus provides a convenient way to compare and contrast local code sections and where no local regulations have been established to address the Phase III checklist requirement.

At the second (July) meeting of the project committee, GWRC demonstrated the functionality of the regional matrix of hyperlinked code citations. CBLAD staff discussed the relationship between the Phase III checklist and the local CBLAD compliance review process. GWRC staff discussed the opportunity to seek legislative approval of an amendment of § 15.2-961.1 of the Code of Virginia and the committee discussed and prioritized the options for where the project could support constructive changes to local development ordinances.

In August the project committee deliberated on where this project could help localities enhance their compliance with Bay Act requirements. Since the Phase III checklist focuses on: 1) preserving indigenous plant species, 2) reducing impervious surface area, and 3) improving water quality; the committee decided that any attempt to change local ordinances related to impervious surface area and improving surface water quality (by changing the volume and quality of stormwater runoff) would be significantly effected by pending changes in statewide stormwater management regulations. Consequently the committee decided to focus on addressing definitional differences and sharing code language where a local government determines a need or is directed by CBLA to enhance its environmental management and development control programs to comply with Chesapeake Bay Act requirements.

In September, the project committee discussed the differences between local governments’ use of various development-related terms important to their compliance with Chesapeake Bay Act requirements. CBLAD staff presented the committee with Department plans for how the checklist would be used as a tool to work with local governments in the Chesapeake Bay Act compliance review program.

Development of Regional Matrix

GWRC staff converted the draft Phase III checklist into a larger table with each community named at the top of each of 7 columns (for Caroline Co, the Town of Bowling Green, the Town of Port Royal, King George Co, the City of Fredericksburg, Spotsylvania Co and Stafford Co). This created a table formatted in landscape mode on an 11” x 17” page. This Word document was supplied to each Committee member and they were asked to fill in the table with the reference citation where the Phase III requirement was addressed in local ordinances.

Upon receipt of the completed local checklist, the individual local responses were copied into a common table which became the completed regional comparative Phase III checklist.



Building the Collection of Local Ordinances

Local governments in the Region provide public access to local ordinances in various ways; i.e. some subscribe to www.MuniCode.com to catalog their local codes on the Internet and others store their locality Code on the locality's website. GWRC researched and downloaded the local codes from their Internet-hosted source to a project-related storage folder, organized by code type and naming each file for the source community (e.g. "Caroline Co Zoning Ord", "Spotsy E&S Ord", etc.). To create a copy of the ordinances stored on www.MuniCode.com, the ordinance had to be printed to an electronic file in pdf format and later converted to Word format. Some ordinances not available on the Internet or through local sources were received from CBLAD staff.

Converting the Regional Matrix to an Interactive Reference Tool

Once the matrix was updated with all local code citations and the electronic catalog of local ordinances was complete, GWRC staff then followed guidelines provided in the Word user help section¹ to insert a hyperlink over a selected code reference and the source document (and internal location) that the link is describing. This is a rather tedious but necessary task to provide full interactivity between the matrix and the reference collection of local code documents.

Using the Matrix to Evaluate Opportunities for Regional Coordination

GWRC staff scanned the assembled regional matrix looking for checklist items where local ordinance responses were more conspicuously absent (i.e. either zero or only 1 local code reference). For instance, this list included:

Checklist Section

Clearing & Grading Requirements
Utility & Easement Requirements
Sensitive Land Protection & Preservation Requirements
Vegetation & Tree Protection Requirements
Minimizing Impervious Surface Areas
Redevelopment & Infill Development Concepts
Road Design Requirements
Pedestrian Pathways & Residential Driveways
General Water Quality Provisions

Regional Matrix References

Page 3, Q#10
Page 4, Q#14
Page 5, Q#20, 22, 27 & 28
Page 6, Q#35 & 37
Page 7, Q#38, 41
Page 8, Q#48, 51, 53
Page 9, Q#56, 57
Page 9, Q#59, 60
Page 9, Sec C Q#3, 4, & 6

This comparison provided an easy beginning for regional committee discussions and local comparative review of different code language in neighboring jurisdictions. From this discussion, the Committee concluded that:

1. Attempting to revise local ordinances to address surface water quality and impervious surface area considerations while major revisions to statewide stormwater management regulations are undergoing public hearing comment would be counter-productive.
2. Local governments' are internally trying to resolve code inconsistencies which could be aided by some regional coordination of key development terms.

¹ Adding a hyperlink in a specific location in another document or Web page

1. Insert a [bookmark](#) in the destination file or Web page.
2. Open the file that you want to link from, and select the text or object you want to display as the hyperlink.
3. On the **Standard toolbar**, click **Insert Hyperlink**.
4. Under **Link to**, click **Existing File or Web Page**.
5. In the **Look in** box, click the down arrow, and navigate to and select the file that you want to link to.
6. Click **Bookmark**, select the bookmark you want, and then click **OK**.
Note To assign a [ScreenTip](#) to display when you rest the mouse over the hyperlink in the source file, click **ScreenTip** and then type the text you want. Word uses the path to the file, including the bookmark name, as the tip if you do not specify one.
7. If you are working with [frames pages](#), specify which frame will display the destination of the hyperlink.

Committee Recommendations

A. Recommendation for State legislative action.

1. Amend “§15.2-961.1. Conservation of trees during land development process in localities belonging to a non-attainment area for air quality standards” to add PD 16 to PD 8 localities that have the enabling authority to exercise the additional requirements of this section. (see Appendix C)

B. Recommendations for Coordinated Local Ordinance Amendments

1. Local ordinances should be reviewed and amended to incorporate the following definitions (as necessary):

Indigenous Species: “...Vegetation (i.e. plant species and/or cultivars thereof) native to the George Washington Planning District (i.e. coastal and/or Piedmont zones of Virginia)”

Land Disturbance: “Any pre-development activity which includes removal of vegetation, the breaking of the ground surface or changing of the topography of land either through the excavation, redistribution or deposition of soil or other earthen material.”

Floodplain: “Those land areas as so designated in the latest FEMA/FIRM 100 year flood maps applicable to any area.”

Wetland Mitigation Bank: “...an area of land on which wetlands are to be restored, created, enhanced or preserved in a manner that will qualify the land for the purpose of engaging in the sale, exchange, or transfer of wetlands mitigation credits required by federal or state authorities to compensate for adverse impact to wetlands. This definition shall not include wetlands mitigation banks owned and controlled by the United States, the Commonwealth of Virginia, any political subdivision of the Commonwealth or any department or agency thereof.”

Open Space: “Conservation (or Natural) Open Space: “undeveloped land or water left in undisturbed, open condition or undeveloped area to be maintained in its naturally vegetated state.”

2. Acknowledge temporal consideration regarding land disturbance.

The Phase III Committee noted that the timing and phasing of the development process can have an impact on the overall environmental impact of land development. The Committee endorsed the practice of trying to limit the land disturbance by encouraging developers to submit a phasing plan, limiting land disturbance associated with a development to the current phase, and leaving future land area undisturbed until the land is needed to accommodate later phases of a development project.

3. Consensus agreement that localities should recognize a standardized list of invasive & non-native species that cause harm.

“Native species are those that occur in the region in which they evolved. Plants evolve over geologic time in response to physical and biotic processes characteristic of a region: the climate, soils, timing of rainfall, drought, and frost; and interactions with the other species inhabiting the local community. Thus native plants possess certain traits that make them uniquely adapted to local conditions, providing a practical and ecologically valuable alternative for landscaping, conservation and restoration projects, and as livestock forage. In addition, native plants can match the finest cultivated plants in beauty, while often surpassing non-natives in ruggedness and resistance to drought, insects and disease.”²

“Alien plants also known as exotic, non-native, or non-indigenous plants, are species intentionally or accidentally introduced by human activity into a region in which they did not evolve. Many alien species are

² Source: http://www.dcr.virginia.gov/natural_heritage/nativeplants.shtml

well known and economically important in agriculture and horticulture, such as wheat, soybeans, and tulips. Alien species, whether plant or animal, often do not become established outside of cultivation and, if they do, they usually have few impacts on natural communities.

Invasive alien plants, however, escape cultivation and become agricultural pests, infest lawns as weeds, displace native plant species, reduce wildlife habitat, and alter ecosystem processes. Across the country and around the world, invasive alien plants and animals have become one of the most serious threats to native species, natural communities, and ecosystem processes. They also exact a costly toll from human economies that depend on resources and services provided by healthy ecosystems. Examples include destruction of vast areas of western rangelands, clogging of important waterways, and increased costs in maintaining open powerline rights-of-way.”³

The Committee recommended local adoption and use of common reference lists of “native” and “non-native/invasive” species so that developers working throughout the region are presented with consistent standards for vegetation protection and landscaping standards. The Committee endorsed using the native species lists for the coastal and piedmont areas of the Commonwealth (Appendices D-1 and D-2, respectively) which appear on the Virginia Natural Heritage website, found at:

http://www.dcr.virginia.gov/natural_heritage/nativeplants.shtml and the invasive species list (Appendix D-3), found at: http://www.dcr.virginia.gov/natural_heritage/documents/invlist.pdf.

4. Local recommendations on landscaping plan review should be sensitive to the context & setting on the site

The Committee noted that staff review recommendations on landscape plans submitted by developers should be made with an awareness of the proper use of native species in the correct spatial context. For instance, plants most appropriate in riparian environments should not be located in areas where the plants are ill-suited to the surrounding environment, (e.g. River Birch trees planted at the top of a hill, rather than at the bottom, closer to the ground water table).

C. Regulatory or Policy Issues:

- I. The Committee noted on-going inconsistencies between state regulations (e.g. Erosion and Sediment Control and existing Stormwater Management regulations and the difficulty of local application of consistent interpretation of conflicting regulations.)

Discussion:

Erosion and Sediment Control Act 10.1-560 Definitions Section

“Land disturbing activity” means “Tilling, planting, harvesting of agricultural, horticultural, and silvicultural crops is exempt, along with ‘agricultural engineering operations.’” DCR has advised that construction of barns, roads, etc. are regulated activities, subject to the runoff requirements of the 4VAC50-30-40 Minimum Standards, specifically MS-19.

Stormwater Management Act 10.1-603.2

“Land disturbing activity” means a manmade change to the land surface that potentially changes its runoff characteristics including any clearing, grading, or excavation associated with a construction activity regulated pursuant to the federal Clean Water Act. 10.1-603.8.B.3: Exempts “clearing of lands for agricultural purposes....”

The Phase III Committee notes that:

(1) neither act defines ‘agriculture.’

(2) Does the locality accept the exemption from SWM and enforce MS-19? DCR has stated that MS-19 will need to be revised, but no details have been provided.

Consider the property owner who wants to build an access road into his property (let’s say, a 100 acre parcel).

³ Source: http://www.dcr.virginia.gov/natural_heritage/invspinfo.shtml

If he says the road is for timber harvest, the activity must follow DOF guidelines. But the activity is exempt from E&S, SWM, CBPA, and if there should be a wetland crossing, no wetland permit is required (e.g. see pictures below). However, if the purpose of the road is for a residential dwelling or simply property access (say, for hunting access), all the programs and requirements apply, unless, the disturbed area is less than one acre per watershed, the stream channel is not currently eroding. The owner's expense begins with having to provide an engineered plan, signed and sealed. And the locality must review, approve, permit, inspect, enforce, and maintain detailed records for many years.

A similar disparity exists for a property owner who wants to clear one acre for either: (1) lawn; (2) pasture; or (3) loading area for timber harvest. For this example, the activity is all the same, only the name changes; however, the regulatory requirements are dramatically different. Driveway? Forestry road? Future development? No matter what we call it, the environmental impacts are the same.

View of exempted logging access road...



One year later: View of same road through wetlands



2. The Committee also suggested that State environmental policy makers and regulators should consider bringing agriculture and silviculture into consistent compliance (as other land development) with the Chesapeake Bay Act.

Discussion: Within the "Timber Harvesting Best Management Practices Guide" the State requires Streamside Management Zones (SMZ) of only 50 feet in width, while RPA buffers are 100 feet wide. The SMZ could be expanded to 100 feet on creeks identified as perennial, while still allowing selective cutting of up to 50% of basal area within it (clear-cutting would not be allowed). This would help retain the functions of the buffer, while also decreasing the costs of replanting the 50 foot landward buffer when development occurs on a site.

Improved co-ordination between the Foresters who inspect the sites and local government staff is important. Stafford County planning staff have maintained a good relationship with the Va. Department of Forestry (DOF)

staff in the region and this has led to better enforcement of both the Forestry regulations and the Chesapeake Bay Act regulations. DOF staff do not have adequate access or information on certain requirements, such as which zoning district a parcel is in or whether forestry is an allowed use under the applicable zoning for the property. An example would be a large project which was rezoned to allow different zones and uses. As the property has not been developed yet, DOF staff would have no idea that silviculture is not an allowed use on the land.

One issue of concern relates to the lack of enforcement of State Code requirements pertaining to the reforestation of land affected by silviculture operations. State Code § 10.1-1126.1 C states: *“The provisions of this section shall apply to the harvesting of timber, provided that the area on which such harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) of Title 10.1 or is converted to bona fide agricultural or improved pasture use as described in subsection B of § 10.1-1163. The provisions of this section shall not apply to land that has been rezoned or converted at the request of the owner or previous owner from an agricultural or rural to a residential, commercial or industrial zone or use.”*

Given the provisions of the aforementioned sections of State Code, after silviculture has occurred, the reforestation required under the Code is not occurring within a few months or even years on sites slated for development. A possible solution would be for DOF to require a reforestation plan for all sites to ensure that the state code requirements are met. Enforcement of this requirement would definitely reduce the instances of silviculture activities on development sites.

A second issue of concern is the apparent loophole in the regulations regarding the definition of what constitutes a “Converted” use and a conflict with Chesapeake Bay Act requirements. There have been instances where silviculture has been undertaken on agriculturally-zoned properties for which preliminary subdivision plans have been approved. Does the land use “Conversion” occur when a construction plan is submitted, as this indicates an eminent change of use? This is important as the Chesapeake Bay Act regulations, in 9VAC10-20-130 3b, state that:

“Where land uses such as agriculture or silviculture within the area of the buffer cease and the lands are proposed to be converted to other uses, the full 100-foot wide buffer shall be reestablished. In reestablishing the buffer, management measures shall be undertaken to provide woody vegetation that assures the buffer functions set forth in this chapter.”

In Stafford County, for example, there have been discussions with developers about replanting affected buffers where developers are in the process of getting construction plans approved within a few years of completing silviculture activities on their land. The developers argue that the “Conversion” does not occur until a plat is recorded. If this is correct, it will be almost impossible, not to mention unfair, to require the buffer to be replanted after a new owner submits a building permit application for a house on the new parcels. In the interim, the replanting that should have occurred is not performed and surface erosion from the cleared land can adversely affect surface water quality.

Note: There may be additional minor revisions to this Checklist prior to the initiation of Advisory Reviews

SITE PLAN AND PLAT CONSISTENCY REVIEW CHECKLIST

The following questions relate to the requirements for information to be included on site plans and plats as outlined in the Regulations. For consistency with the Regulations, each applicable question should be answered in the affirmative. In cases where no new on-site septic systems are permitted by the local government, Questions #3 and #4 may not be applicable.

For the purposes of reviewing local government consistency with the requirements of 9 VAC 10-20-191 A 4 & 5, the terms “plat” and “site plan” will be interpreted as follows:

“Plat” means a survey developed for the purposes of subdividing from a larger parcel of land or adjusting the boundaries of the parcel showing the boundary lines and existing and planned features of the property.

“Site plan” means those plans that are required by the local government as a part of the plan of development review process required by 9 VAC 10-20-120 4.

1. Do local land development ordinances require the depiction of Resource Protection Area (RPA) and Resource Management Area (RMA) boundaries on submitted plats and site plans? (9 VAC 10-20-191 A 4 i)

☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____

Is this information required through some other mechanism? If so, please describe.

2. Do local land development ordinances require a notation on plats of the requirement to retain an undisturbed and vegetated 100-foot wide buffer area? (9 VAC 10-20-191 A 4 i)

☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____

Is this information required through some other mechanism? If so, please describe.

3. For areas that require on-site (including remotely located) sewage treatment systems, do local land development ordinances require plats to have a notation regarding the requirement for pump-out for on-site sewage treatment systems? (9 VAC 10-20-191 A 4 ii)

☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____

Is this information required through some other mechanism? If so, please describe.

4. For areas that require on-site (including remotely located) sewage treatment systems, do local land development ordinances require plats to have a notation regarding the requirement for 100% reserve drainfield sites for on-site sewage treatment systems? (9 VAC 10-20-191 A 4 ii)

☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____

Is this information required through some other mechanism? If so, please describe.

5. Do local land development ordinances require a notation on plats that specifies permitted development in the RPA is limited to water dependent facilities or redevelopment in Resource Protection Areas, including the 100-foot wide vegetated buffer? (9 VAC 10-20-191 A 4 iii)

☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____

Is this information required through some other mechanism? If so, please describe.

6. Does the local government require, within the plan of development review process, the delineation of the buildable areas on each lot, based on the performance criteria, local front and side yard setbacks, and any other relevant easements or limitations regarding lot coverage? (9 VAC 10-20-191 A 5)

☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____

Is this information required through some other mechanism? If so, please describe.

CHECKLIST FOR EVALUATION OF LOCAL PHASE III PROGRAMS

LOCALITY: _____
 DATE OF REVIEW: _____
 REVIEWER: _____

SECTION A: LOCAL LAND DEVELOPMENT ORDINANCE REQUIREMENTS

_____ TOTAL POINTS
 6 POINTS REQUIRED TO PASS

SECTION B: GENERAL PERFORMANCE CRITERIA IMPLEMENTATION OPTIONS

PART 1 – MINIMIZE LAND DISTURBANCE: _____ POINTS
24 IS PASSING SCORE FOR PART 1

PART 2 – PRESERVE INDIGENOUS VEGETATION: _____ POINTS
22 IS PASSING SCORE FOR PART 2

PART 3 – MINIMIZE IMPERVIOUS COVER: _____ POINTS
28 IS PASSING SCORE FOR PART 3

SECTION C SUPPLEMENTAL POINTS: _____ POINTS

_____ TOTAL POINTS
 74 POINTS REQUIRED TO PASS

SECTION C: GENERAL WATER QUALITY PROTECTION PROVISIONS

_____ TOTAL SUPPLEMENTAL POINTS
 POINTS ADDED TO SECTION B TOTAL

SUPPLEMENTAL REVIEW INFORMATION

LOCAL DOCUMENTS REVIEWED: _____

SECTION B TRACKING SHEET:

Part 1 – Minimize Land Disturbance:	19 questions
1A – Open Space Requirements:	_____ of 8 possible points
1B – Clearing and Grading Requirements:	_____ of 16 possible points
1C – Utility and Easement Requirements:	_____ of 8 possible points
1D – LID/ Better Site Design Concepts:	_____ of 8 possible points
1E – Other standards	_____ additional points
Part 1 TOTAL:	_____ (24 is passing score)
Part 2 – Preserve Indigenous Vegetation:	18 questions
2A – Sensitive Land Protection/Preservation:	_____ of 21 possible points
2B – Vegetation and Tree Protection Requirements:	_____ of 14 possible points
2C – LID/ Better Site Design Concepts:	_____ of 2 possible points
2D – Other standards	_____ additional points
Part 2 TOTAL:	_____ (22 is passing score)
Part 3 – Minimize Impervious Cover:	25 questions
3A – Parking Requirements:	_____ of 22 possible points
3B – LID/ Better Site Design Concepts:	_____ of 6 possible points
3C – Redevelopment and Infill Development Concepts:	_____ of 6 possible points
3D – Road Design Requirements:	_____ of 8 possible points
3E – Pedestrian Pathways and Driveways:	_____ of 6 possible points
3F – Other standards	_____ additional points
Part 3 TOTAL:	_____ (28 is passing score)



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CHECKLIST DESCRIPTION AND PURPOSE

Phase III of local government implementation of the [Chesapeake Bay Preservation Act](#) requires the 84 Tidewater local governments to review local land development ordinances, and revise if necessary, in order to ensure these ordinances adequately address the protection of the quality of state waters. The [Chesapeake Bay Preservation Area Designation and Management Regulations](#) (Regulations) require local governments to have provisions in their ordinances to ensure, that as land development occurs, three performance criteria are addressed: 1) land disturbance is minimized, 2) indigenous vegetation is preserved and, 3) impervious cover is minimized.

There are three sections of this Checklist; Section A: *Local Land Development Ordinance Requirements*, Section B: *General Performance Criteria Implementation Options* and Section C: *General Water Quality Protection and Improvement Provisions*. These three sections will be used for the evaluation of local Phase III programs. The *Local Land Development Ordinance Requirements* focus on determining whether local government land development ordinances have incorporated specific requirements of the regulations, as required by 9 VAC 10-20-191 A Subsections 4 and 5. It is important to note that these requirements only apply to plats and plans that are filed for properties within Chesapeake Bay Preservation Areas. For Section A, all responses must be affirmative, as all elements are clearly required by the Regulations.

Section B: *General Performance Criteria Implementation Options* evaluates whether local land development ordinances include specific language that promotes minimizing land disturbance (Part 1) and impervious cover (Part 3) and maximizes the protection of indigenous vegetation (Part 2) within Chesapeake Bay Preservation Areas (CBPAs) as required under 9 VAC 10-20-120 Subsections 1, 2 and 5. The Regulations identify these three performance criteria as required measures to protect the quality of state waters. This Section includes possible measures that implement the three general performance criteria that may be contained within a locality's land development ordinances. Most measures included in Section B has been assigned a value of two points, with some having potential points that range from 1 to 4 points. Each contributes in some way towards water quality protection. There is also space for a local government to add specific measures that are included in an ordinance, but which are not included in this portion of the Checklist. Each of these additional measures that Department staff agrees contributes to water quality protection will also receive two points. There are minimum passing scores for each of the three parts in Section B: Part 1 is 24 points, Part 2 is 22 points and Part 3 is 28 points. In order for a local government to have a consistent Phase III program, the minimum passing score for each of the three parts in Section B is required.

Section C: *General Water Quality Protection Provisions* includes practices and programs that may not fit into a general performance criterion, but which can be important to protecting and improving water quality. Section 9 VAC 10-20-191 B seeks to promote the protection of state waters in these ordinances. The points received in this section can be used to augment scores from one of the three parts of Section B if the minimum score was not achieved in one of the three parts.

In completing all sections of this Checklist, Department staff will review local government ordinances and other documents that have been adopted by the local governing body for inclusion of the measures on the Checklist, point values will be added, and compared to the minimum required thresholds to determine if a locality's ordinances and other adopted mechanisms adequately address the general performance criteria. While the Department intends to undertake the review of ordinances and other adopted mechanisms using this Checklist, local governments are encouraged to do so themselves if they so choose. If a local government does review their ordinances and adopted documents and completes this Checklist, Department staff will review the completed Checklist.

In order to complete or review this Checklist, the Department will review copies of pertinent land development ordinances and other adopted documents. For the purpose of this review, **other adopted documents** should include only those documents that are adopted by the local governing body and which outline specific **requirements** related to the development and use of land.

The land development ordinances and other adopted documents that are provided for review by the Department should include specific standards that would address the requirements outlined in Section A and which would address one or more of the three general performance criteria as outlined in Section B. When providing these ordinances and other adopted documents, local governments are encouraged to indicate which of the three performance criteria the contents of a particular ordinance or adopted document may address. For instance, a landscape ordinance may include standards that would address the requirement to maximize the protection of indigenous vegetation.



SECTION A: LOCAL LAND DEVELOPMENT ORDINANCE REQUIREMENTS

1. Do local land development ordinances require the depiction of Resource Protection Area (RPA) and Resource Management Area (RMA) boundaries on submitted plats and plans? (9 VAC 10-20-191 A 4 i)
☐ Yes ☐ No
Which Ordinance(s)? _____ Ordinance Section(s): _____
Is this information required through some other mechanism? If so, please describe.

2. Do local land development ordinances require a notation on plats of the requirement to retain an undisturbed and vegetated 100-foot wide buffer area? (9 VAC 10-20-191 A 4 i)
☐ Yes ☐ No
Which Ordinance(s)? _____
Ordinance Section(s): _____
Is this information required through some other mechanism? If so, please describe. _____
3. For areas that require on-site (including remotely located) sewage treatment systems, do local land development ordinances require plats to have a notation regarding the requirement for pump-out for on-site sewage treatment systems? (9 VAC 10-20-191 A 4 ii) ☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____
Is this information required through some other mechanism? If so, please describe. _____
4. For areas that require on-site (including remotely located) sewage treatments systems, do local land development ordinances require plats to have a notation regarding the requirement for 100% reserve drainfield sites for on-site sewage treatment systems? (9 VAC 10-20-191 A 4 ii) ☐ Yes ☐ No
Which Ordinance(s)? _____ Ordinance Section(s): _____
Is this information required through some other mechanism? If so, please describe. _____

Do local land development ordinances require a notation on plats that specifies permitted development in the RPA is limited to water dependent facilities or redevelopment in Resource Protection Areas, including the 100-foot wide vegetated buffer? (9 VAC 10-20-191 A 4 iii) ☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____
Is this information required through some other mechanism? If so, please describe. _____
5. Does the local government require, within the plan of development review process, the delineation of the buildable areas on each lot, based on the performance criteria, local front, side and rear yard setbacks, and any other relevant easements or limitations regarding lot coverage? (9 VAC 10-20-191 A 5)
☐ Yes ☐ No

Which Ordinance(s)? _____ Ordinance Section(s): _____
Is this information required through some other mechanism? If so, please describe. _____

SECTION B: GENERAL PERFORMANCE CRITERIA IMPLEMENTATION OPTIONS

PART 1: MINIMIZE LAND DISTURBANCE – 9 VAC 10-20-120 1 - 19 QUESTIONS

The minimization of land disturbance can be accomplished through the application of four general techniques included below as four sections. Each of these general techniques is presented below, with examples of more specific requirements that minimize land disturbance. Each affirmative answer to a question is worth 2 points, unless alternative points are noted under the question. Additionally, space has been provided for the locality to include other options not currently listed and if the Department concurs that these additional provisions contribute to water quality protection, two points will be awarded for each additional provision.

*The overall **minimum score** necessary to meet this performance criterion is **24 points**.*

Section 1A - Open Space Requirements – 3 questions

1. What is the definition of "open space" used by the locality and where is this definition located?
Definition: _____
Ordinance name and citation: _____



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2. Is there an ordinance provision, or other adopted document that requires a certain portion or percentage of undisturbed open space as part of zoning district requirements? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
 Zoning Districts and required percentages: _____
3. Is there a cluster ordinance, other ordinance provision, or other adopted document, that allows flexibility for development intensity or density (through cluster developments, height flexibility, density bonus, etc.) in exchange for increased resource protection (open space, preservation of natural, undisturbed buffers, etc.)? Yes ☐ No ☐
 Ordinance name and citation: _____
 Other adopted document: _____
4. Do open space or other requirements within an ordinance, or other adopted document, protect land, other than RPAs?
Score 1 point for each type: Number of points _____
- | | | |
|-------------------------|------------------------------|-----------------------------|
| • Wetlands | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| • Steep slopes | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| • Intermittent streams | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| • Highly erodible soils | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| • Floodplains | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
- Ordinance name and citation: _____ Other adopted document: _____

Section 1B - Clearing and Grading Requirements – 8 questions

5. Is there an ordinance provision, or other adopted document, that requires that all clearing and grading plans or equivalent (including individual lots) specify limits of clearing and restricts clearing to the minimum necessary for the construction of the project? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
6. Is there an ordinance provision, or other adopted document, that authorizes staff to establish limits on clearing and grading? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
7. Is there an ordinance provision, or other adopted document, that includes a definition of “construction footprint” and limits clearing and grading to the construction footprint? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
8. Is there an ordinance provision, or other adopted document that requires the RPA be physically marked on-site prior to any clearing and/or grading and throughout the development process? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
9. Is there an ordinance provision, or other adopted document that requires the limits of clearing and grading to be physically marked on-site? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
10. Is there an ordinance provision, or other adopted document, that requires documentation of the condition of the RPA to be provided before and after development to ensure that it remains undisturbed? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
11. Is there an ordinance provision, or other adopted document, that prohibits clearing and grading on sensitive lands (i.e. steep slopes, highly erodible soils, etc.) other than required RPA features? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
 Other lands: _____
12. Is there an ordinance provision that designates other sensitive lands, such as steep slopes, highly erodible soils, non-RPA nontidal wetlands, etc. as components of the RPA? Yes ☐ No ☐

- Wetlands Yes ☐ No ☐
- Steep slopes Yes ☐ No ☐
- Intermittent streams Yes ☐ No ☐
- Highly erodible soils Yes ☐ No ☐
- Floodplains Yes ☐ No ☐
- Other lands _____ Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

Section 1C - Utility and Easement Requirements (Public and Private) – 4 questions

For the purposes of this checklist, public utilities mean those outlined under Section 9 VAC 10-20-150 B 2 of the Regulations: *“Construction, installation and maintenance of water, sewer, natural gas, and underground telecommunications and cable television lines, owned, permitted or both by a local government or regional service authority...”*

13. Is there an ordinance provision, or other adopted document, that requires approval of utility installation plans, including temporary construction areas, prior to land disturbance? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

14. Is there an ordinance provision, or other adopted document, that requires a replanting plan, other than stabilization required for erosion and sediment control, when vegetation is removed for temporary construction easements? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

15. Is there an ordinance provision, or other adopted document, that allows or requires the placement of public utilities within the right-of-way for public or private roads or alleys, when present? *Score 1 point for allows, 2 points for requires.* Yes ☐ No ☐ Number of points ☐

Ordinance name and citation: _____ Other adopted document: _____

Section 1D - Low Impact Development /Better Site Design Concepts – 3 questions

For the purposes of this checklist, Low Impact Development (LID) includes those practices that combine hydrologically functional site designs with pollution prevention measures to compensate for land development impacts on hydrology and water quality.

16. Does the locality provide incentives for retaining natural, undisturbed open space on a site? These incentives may include intensity or density bonuses, stormwater credit, etc.

Score 1 point for each type of natural resource retained:

- Wetlands Yes ☐ No ☐
- Intermittent streams Yes ☐ No ☐
- Steep slopes Yes ☐ No ☐
- Highly erodible soils Yes ☐ No ☐
- Floodplains Yes ☐ No ☐
- Other lands _____ Yes ☐ No ☐

Number of points ☐

Types of incentives provided: _____

Ordinance name and citation: _____ Other adopted document: _____

17. Do local ordinance provisions, or other adopted documents, allow flexibility in practices to enable the implementation of LID practices that limit land disturbance?

Yes ☐ No ☐ Ordinance name and citation: _____ Other adopted document: _____

18. Are there ordinance provisions or other adopted documents that require the incorporation of existing drainage ways and the integration of natural drainage patterns into site drainage plans?

Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

Section 1E - Other Standards

19. Are there other ordinance provisions, or other specific standards in other adopted documents that limit land disturbance?

Yes ☐ No ☐

Ordinance names and citations: _____

Other adopted document: _____ Other standards: _____

PART 2 - PRESERVE INDIGENOUS VEGETATION – 9 VAC 10-20-120 2 – 18 QUESTIONS

The preservation of indigenous vegetation can be accomplished through the application of three general techniques included below as three sections. Each of these general techniques is presented below, with examples of more specific requirements that minimize land disturbance. Each affirmative question is worth 2 points, unless otherwise noted. Additionally, space has been provided for the locality to include other options not currently listed and if the Department concurs that these additional provisions contribute to water quality protection, two points will be awarded for each additional provision.

*The overall **minimum score** necessary to meet this performance criterion is **22 points**.*

Section 2A - Sensitive Land Protection/Preservation – 9 questions

20. Is there an ordinance provision, or other adopted document, that requires conservation areas or corridors (i.e. greenways, etc.)? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

21. Is there an ordinance provision, or other adopted document, that requires riparian vegetated buffers adjacent to non-perennial water bodies or wetlands not required to be included as RPAs? *Score three points for an affirmative answer.* Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

22. Is there an ordinance provision, or other adopted document, that requires the permanent marking of the RPA boundaries and if so, which zoning districts does this apply to? Yes ☐ No ☐

Ordinance name and citation: _____
Other adopted document: _____ Zoning Districts: _____

23. Is there an ordinance provision, or other adopted document, that requires a portion of open space, other than RPAs, to be left in natural, vegetated condition?

Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

Percentage to be left natural: _____

24. Is there an ordinance provision, or other adopted document, that requires a building setback from the RPA boundary? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

Setback width: _____

25. Is there an ordinance provision, or other adopted document, that requires a building setback from other sensitive lands such as intermittent streams and non-RPA nontidal wetlands? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

Setback width: _____

Sensitive lands protected: _____

26. Is there an ordinance provision, or other adopted document, that requires the preservation of vegetation on sensitive lands other than required RPA land types?

One point for each included:

- | | | |
|-------------------------|------------------------------|-----------------------------|
| • Steep slopes | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| • Highly erodible soils | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| • Floodplains | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| • Wetlands | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

Number of points ☐

Ordinance name and citation: _____

Land types protected: _____



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27. Is there an ordinance provision, or other adopted document, that limits removal of vegetation for temporary construction easements for utilities? Yes ☐ No ☐
 Ordinance name and citation: _____
 Other adopted document: _____
28. Is there an ordinance provision, or other adopted document, that limits removal of vegetation for maintenance of utility easements? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____

Section 2B - Vegetation and Tree Protection Requirements – 7 questions

29. Does the locality have a tree protection ordinance that protects existing trees (if permitted by state law)?
 Yes ☐ No ☐
 Ordinance name and citation: _____
30. Are there ordinance provisions, or other adopted documents, that include more specific tree preservation requirements for the preservation of stands of trees or contiguous wooded areas? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
31. Is there an ordinance provision, or other adopted document, that awards credit for maintaining indigenous vegetation when meeting landscaping requirements? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
32. Is there an ordinance provision, or other adopted document, that requires vegetated non-RPA buffers to be left undisturbed? Yes ☐ No ☐ Ordinance name and citation: _____ Other adopted document: _____
33. Is there an ordinance provision, or other adopted document, that includes clear language to protect woody vegetation outside of the construction footprint on individual lots or development sites? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____
34. Is there an ordinance provision, or other adopted document, that requires a landscape maintenance agreement or similar mechanism to protect existing vegetation to be preserved on site throughout the construction process? Yes ☐ No ☐ Ordinance name and citation: _____ Other adopted document: _____
35. Is there an ordinance provision, or other adopted document, that requires the preservation of existing vegetation in open space as a component of cluster development? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____

Section 2C - Low Impact Development/Better Site Design Concepts – 1 question

36. Is there an ordinance provision, or other adopted document, that requires a natural resources (or environmental) assessment as the initial part of the plan of development review process (i.e. pre-submission/ pre-application requirement for site plans, preliminary subdivision plats, etc.) and uses this information in the review of proposed projects to limit the impacts on natural resources? Yes ☐ No ☐
 Ordinance name and citation: _____ Other adopted document: _____

Section 2D - Other Standards

37. Are there other ordinance provisions, or other specific standards in other adopted documents that preserve indigenous vegetation? Yes ☐ No ☐ Ordinance names and citations: _____
 Other adopted document: _____ Other standards: _____

PART 3 - MINIMIZE IMPERVIOUS COVER – 9 VAC 10-20-120.5 – 24 QUESTIONS

The minimization of impervious cover can be accomplished through the application of five general techniques included below as five sections. Each of these general techniques is presented below, with examples of more specific requirements that minimize land disturbance. Each affirmative question is worth 2 points, unless otherwise noted. Additionally, space has been provided for the locality to include other options not currently listed and if the Department concurs that these additional provisions contribute to water quality protection, two points will be awarded for each additional provision.

*The overall **minimum score** necessary to meet this performance criterion is **28 points**.*



Section 3A - Parking Requirements – 11 questions

For the purposes of this evaluation, the Department considers gravel, asphalt, concrete, and other hard-packed surfaces to be impervious.

38. Is there an ordinance provision, or other adopted document, that sets maximum parking space requirements for some or all zoning districts? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____ Applicable zoning districts: _____

39. Is there an ordinance provision, or other adopted document, that allows or requires the use of alternative pervious surfaces for required parking and/or overflow parking areas?

Score 1 point for allows, and 2 points for requires

Ordinance name and citation: _____ Other adopted document: _____

40. Are there ordinance provisions, or other adopted documents, that allow for shared and off-site parking in certain zoning districts, such as commercial and office districts? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

Districts where allowed: _____

Is there an ordinance provision, or other adopted document, that allows or requires a percentage of parking spaces for compact cars or motorcycles? Yes ☐ No ☐ Number of points ☐

Score 1 point for allows, and 2 points for requires

Ordinance name and citation: _____ Other adopted document: _____

Percentage of total: _____ Size of compact car spaces: _____

41. Is there an ordinance provision, or other adopted document, that provides incentives for structural parking versus surface parking? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

42. Is there an ordinance provision, or other adopted document, that limits the width of travel lanes in parking areas to the following chart of minimum widths:

<u>Parking Angle</u>	<u>1-way</u>	<u>2-way</u>
90 degree	20 feet	25 feet
60 degree	16 feet	25 feet
45 degree	14 feet	25 feet
30 degree	12 feet	25 feet
Parallel	12 feet	25 feet

Score 1 point if some of the minimum widths are included, 2 points if all minimum widths are included.

Yes ☐ No ☐ Number of points: ☐

Ordinance name and citation: _____ Other adopted document: _____

43. Is there an ordinance provision, or other adopted document, that allows single travel aisles versus double aisles in parking areas? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

44. Is there an ordinance provision, or other adopted document, that limits the size of parking stalls to 9' by 18', for all parking stalls except handicapped stalls? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

45. Is there an ordinance provision, or other adopted document, that allows on-street parking to count towards required minimum parking spaces? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

46. Is there an ordinance provision, or other adopted document, that sets parking space minimums for commercial and office uses to 4 spaces or less per 1000 net square feet? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

47. Is there an ordinance provision, or other adopted document, that sets parking space minimums for churches, schools, theaters, etc. to 1 for every 4 fixed seats or less, or 10 spaces or less per 1000 net square feet?



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Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

Section 3B - Low Impact Development/Better Site Design Concepts – 2 questions

For the purpose of this checklist, "lot coverage" means all impervious surfaces, such as buildings, structures, decks, driveways, patios, parking lots and sidewalks, etc.

48. Is there an ordinance provision, or other adopted document, that sets maximum impervious coverage or lot coverage for lots and/or parcels based on zoning districts? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

Zoning districts and percentage of impervious coverage allowed: _____

49. Is there an ordinance provision, or other adopted document, that allows or encourages increased building height, floor area ratio, density, etc. to limit impervious coverage? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

50. Is there an ordinance provision, or other adopted document, that allows or encourages the use of vegetated bio-retention facilities to meet parking lot landscaping requirements? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

Section 3C - Redevelopment or Infill Development Concepts – 3 questions

51. Are there ordinance provisions that promote infill or redevelopment through techniques such as tax and other local incentives, or through other methods? Yes ☐ No ☐

Ordinance name and citation: _____

Other adopted document: _____

Promotion methods: _____

52. Is there an ordinance provision, or other adopted document, that allows or promotes LID practices (ie. green roof, streetscape, bio-retention, etc.) in redevelopment projects in urban areas?

Score 1 point for allows, 2 points for promotes Yes ☐ No ☐ Number of points ☐

Ordinance name and citation: _____

Other adopted document: _____

53. Is there an ordinance provision, or other adopted document that reduces impervious cover on redevelopment projects? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

Section 3D - Road Design Requirements – 4 questions

54. Is there an ordinance provision, or other adopted document, that establishes a maximum radii of cul-de-sacs that does not exceed VDOT's minimum standards (30' minimum radius/less than 25 dwellings & less than .25 mile in street length; 45' minimum all other streets)? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

55. Is there an ordinance provision, or other adopted document, that permits the pavement width of private roads to be narrower than VDOT standards? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

56. Is there an ordinance provision, or other adopted document, that limits turn lanes, road widths and other pavement requirements to the minimum VDOT standards? Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____

57. Is there an ordinance provision, or other adopted document that allows permeable surfaces for required emergency vehicle access lanes (aside from the main roads)?

Yes ☐ No ☐

Ordinance name and citation: _____ Other adopted document: _____



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Section 3E - Pedestrian Pathways and Residential Driveways – 3 questions

58. Is there an ordinance provision, or other adopted document, that permits shared driveways? Yes ☐ No ☐
Ordinance name and citation: _____ Other adopted document: _____
59. Is there an ordinance provision, or other adopted document, that limits sidewalks and other pedestrian pathways to the minimum VDOT standards? Yes ☐ No ☐
Ordinance name and citation: _____ Other adopted document: _____
60. Is there an ordinance provision, or other adopted document, that provides for the use of alternative permeable materials for sidewalks and/or driveways? Yes ☐ No ☐
Ordinance name and citation: _____ Other adopted document: _____

Section 3F - Other Standards

61. Are there other ordinance provisions, or other specific standards in other adopted documents that limit impervious cover? Yes ☐ No ☐
Ordinance names and citations: _____ Other adopted document: _____
Other standards: _____

SECTION C: GENERAL WATER QUALITY PROTECTION PROVISIONS

The following questions are worth 2 points each, unless otherwise noted, and any points earned in this section can be added to the overall total for any of the parts under Section II. These questions relate to general water quality protection or improvement provisions or program elements.

1. Does the locally designated CBPA cover more than 50 percent of the locality's total land area or greater than 50 percent of the total land area in the Chesapeake Bay watershed? Yes ☐ No ☐
Ordinance name and citation: _____
Documentation: _____
2. Does the locally designated CBPA include all land area within a locality or all land area within the Chesapeake Bay watershed? Yes ☐ No ☐
Ordinance name and citation: _____
3. Is there an ordinance provision, or other adopted document, that provides incentives or requires low impact development (LID) techniques during the plan review process or mandated when technically feasible?
Score 2 points for provide incentives, and 3 for requires
Yes ☐ No ☐
Number of points ☐ Ordinance name and citation: _____ Other adopted document: _____
4. Is there an ordinance provision, or other adopted document, that requires conservation design to be undertaken before land disturbance is approved? Yes ☐ No ☐
Ordinance name and citation: _____
Other adopted document: _____
5. Is there an ordinance provision, or other adopted document, that permits the Purchase or Transfer of Development Rights? Yes ☐ No ☐
Ordinance name and citation: _____
Other adopted document: _____
6. Is there an ordinance provision, or other adopted document, that provides incentives for or requires the use of vegetated BMPs or additional vegetation as part of traditional BMPs to enhance their pollutant removal function? Yes ☐ No ☐
Ordinance name and citation: _____ Other adopted document: _____

**GWRC Regional Phase III
Development Ordinance Review Checklist Matrix**



Regional Comparative Summary of CBLAD Phase III Checklist Responses

Part B Element	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
Sec. A: Local Land Development Ordinance Requirements							
<p>1. Do local land development ordinances require the depiction of Resource Protection Area (RPA) and Resource Management Area (RMA) boundaries on submitted plats and plans? (9 VAC 10-20-191 A 4 i) Which Ordinance(s)? _____ Ordinance Section(s): _____ Is this information required through some other mechanism? If so, please describe. _____</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning: Article 15 Sec 14.18 (Site Plan Requirements – Chesapeake Bay Preservation Areas), Art 15 Sect 17.11.B(8) & C(3) & D(1)(b) (CBPA Overlay District), Art 17 Sec 4.A.1.h (Zoning Permit Applications), Subdivision: Sec 6-1.1.a.ix & Sec 6-3.1.c.xxii (Approval of Plats), Subdivision: Sec 6-9.3.iii</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Caroline County E&S §45-4(B)(1)(7) on Erosion & Sediment Control Plans, Subdivision Ordinance §101-26(D)(23) on Preliminary Plats</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Plan of Development Process Document Sec. 2.1.1.9 for Plot Plans, Sec. 2.1.3.3 for Subdivision Plans, Caroline County E&S §45-4(B)(1)(7) on Erosion & Sediment Control Plans</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Subdivision Ord. Sec. 3.3.16</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>78-850 78-1066 (a 78-1060 (1)(9</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning: 23-4.5.5(27), 23-4.6.2(j), 23-5.5.4(d),23-6.27.2: Subdivision20-4.4.1(xxii)</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning Sec 28-62(h)(6)</p>
<p>2. Do local land development ordinances require a notation on plats of the requirement to retain an undisturbed and vegetated 100-foot wide buffer area? (9 VAC 10-20-191 A 4 i) Which Ordinance(s)? _____ Ordinance Section(s): _____ Is this information required through some other mechanism? If so, please describe. _____</p>	<p>?<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning: Art 15 Sec 17.9.F(1) (CBPA Overlay District), Art 15 Sec 17.9.F(2)(a)&(3)(a), Art 17 Sec 4(A)(1)(h) (Zoning Permit Applications)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Subdivision Ord. Sec. 1.4.2b6</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>County Code 6A-10(b)(1)&(2)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>3. For areas that require on-site (including remotely located) sewage treatment systems, do local land development ordinances require plats to have a notation regarding the requirement for pump-out for on-site sewage treatment systems? (9 VAC 10-20-191 A 4 ii) Which Ordinance(s)? _____ Ordinance Section(s): _____ Is this information required through some other mechanism? If so, please describe. _____</p>	<p>?<input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning Art 15 Sect 17.8.B(7)(a) does require pump out every five years</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Subdivision Ord. Sec 1.4.2b6</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Subdivision 78-1230-C,4</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning:23-4.11.2(21); Subdivision20-4.3.2, 20-4.4.1 (xxix)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>See Local Note</p>
<p>4. For areas that require on-site (including remotely located) sewage treatments systems, do local land development ordinances require plats to have a notation regarding the requirement for 100% reserve drainfield sites for on-site sewage treatment systems? (9 VAC 10-20-191 A 4 ii) Which Ordinance(s)? _____ Ordinance Section(s): _____ Is this information required through some other mechanism? If so, please describe. _____</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning Art 15 Sect 17.8.B(7)(b), Subdivision Sect 6-3.1.c.xxix</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Subdivision Ord. Sec 1.4.2b6</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>78-139</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>County Code 6A-10(b)(1)&(2)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>See Local Note</p>
<p>5. Do local land development ordinances require a notation on plats that specifies permitted development in the RPA is limited to water dependent facilities or redevelopment in Resource Protection Areas, including the 100-foot wide vegetated buffer? (9 VAC 10-20-191 A 4 iii) Which Ordinance(s)? _____ Ordinance Section(s): _____ Is this information required through some other mechanism? If so, please describe. _____</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Zoning Art 15 Sect 17.9.A</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Subdivision Ord. Sec 1.4.2b6</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Subdivision Checklist & County Code Section 6A-5(1)(d)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>See Local Note</p>
<p>6. Does the local government require, within the plan of development review process, the delineation of the buildable areas on each lot, based on the performance criteria, local front, side and rear yard setbacks, and any other relevant easements or limitations regarding lot coverage? (9 VAC 10-20-191 A 5) Which Ordinance(s)? _____ Ordinance Section(s): _____ Is this information required through some other mechanism? If so, please describe. _____</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning Art 15, sect 14 (Site Plan Requirements)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Plan of Development Process Document Sec. 2.1.1.5 (referenced within Zoning Ordinance Sec. 6-11</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Sub. 3.3.23</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning: 23-4.5.3, 23-4-11.2: Subdivision20-4.3.2(xi), 20-4.4.1(xxx), 20-5.1.9(a).</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Zoning: Sec 28-62(d) Lot Size, 28-38(k) RPA Setback; 28-35 Table 3.1</p>

Regional Comparative Summary of CBLAD Phase III Checklist Responses

SECTION B: GENERAL PERFORMANCE CRITERIA IMPLEMENTATION OPTIONS

PART 1: MINIMIZE LAND DISTURBANCE – 9 VAC 10-20-120 1 - 19 QUESTIONS

The minimization of land disturbance can be accomplished through the application of four general techniques included below as four sections. Each of these general techniques is presented below, with examples of more specific requirements that minimize land disturbance. Each affirmative answer to a question is worth 2 points, unless alternative points are noted under the question. Additionally, space has been provided for the locality to include other options not currently listed and if the Department concurs that these additional provisions contribute to water quality protection, two points will be awarded for each additional provision.

The overall *minimum score necessary to meet this performance criterion is 24 points.*

Section 1A - Open Space Requirements – 3 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
1. What is the definition of “open space” used by the locality and where is this definition located? Definition: _____ Ordinance name and citation: _____	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning Art 2 Sect 2 (Definitions)</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning Ordinance: §126-4 & §126-45</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Definition: Required open space is defined as any space required in any front, side or rear yard.</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Sub. 1.7 (several definitions will insert later)</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>78-1</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning and Subdivision Definitions</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning Ordinance Sec 28-25</div>
2. Is there an ordinance provision, or other adopted document that requires a certain portion or percentage of undisturbed open space as part of zoning district requirements? Ordinance name and citation: _____ Other adopted document _____ Zoning Districts and required percentages: _____	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning Art 11 Division 2 Sect 6 & Division 3 Sect 7.2 & Division 6 Sect 4.D, Art 4 Sect 5</div>	<div><input type="checkbox"/> Yes <input type="checkbox"/> No</div>	<div><input type="checkbox"/> Yes <input type="checkbox"/> No</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning Ord. 11.6A</div>	<div><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning</div>	<div><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div>
3. Is there a cluster ordinance, other ordinance provision, or other adopted document, that allows flexibility for development intensity or density (through cluster developments, height flexibility, density bonus, etc.) in exchange for increased resource protection (open space, preservation of natural, undisturbed buffers, etc.)? Ordinance name and citation: _____ Other adopted document: _____	<div><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div> <div>Zoning Art 11 Division 2 Sect 1 & Sect 5 & Sect 8, Zoning Art 11 Division 3 Sect 1 & Sect 7.1</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning: Article VII, PUD (50% Open Space)</div>	<div><input type="checkbox"/> Yes <input type="checkbox"/> No</div>	<div><input type="checkbox"/> Yes <input type="checkbox"/> No</div>	<div><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div>	<div><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</div> <div>Zoning Ordinance within each separate zoning district.</div>	<div><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</div>
4. Do open space or other requirements within an ordinance, or other adopted document, protect land, other than RPAs? Score 1 point for each type: Ordinance name & citation: _____ Other adopted document: _____	<div><div>• Wetlands: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Steep slopes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Intermittent streams Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Highly erodible soils Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>No. of points 4</div><div>Zoning Art 15 sect 6, Zoning Art 15 Sect 17.5 (Resource Management Area)</div></div>	<div><div>• Wetlands: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Intermittent streams Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>No. of points 0</div><div>Zoning: Sec 126-79.12(B)(1)(a)</div></div>	<div><div>• Wetlands: Yes <input type="checkbox"/> No <input type="checkbox"/></div><div>• Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/></div><div>• Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/></div><div>• Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>No. of points 1</div></div>	<div><div>• Wetlands: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Intermittent streams Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>No. of points 3</div><div>Wetlands & Streams Zoning ord Sec. 8 Flood Plains Zoning Ord. 9.11</div></div>	<div><div>• Wetlands: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Steep slopes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Intermittent streams Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Highly erodible soils Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>No. of points 5</div><div>78-846</div></div>	<div><div>• Wetlands: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Steep slopes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Intermittent streams Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>No. of points _____</div><div>Zoning Ordinance 23-5.5.1 Landscaping, 23-7-2.1 Flood Plain Overlay District 23-7.5.1, River Overlay District 23-4.4.1, Subdivision Ordinance 20-5.1.3 Site analysis; 20-5.1.4 tree cover requirements; 20-5.1.1 Tree Preservation credit; 20-5.1.9(k) scenic buffer strips;</div></div>	<div><div>• Wetlands: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Steep slopes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Intermittent streams Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>No. of points 2</div><div>Zoning Ordinance Sec 28-67 Potomac River Resource Protection Overlay District & Sec. 28-66. P-TND, Planned-Traditional Neighborhood Development.</div></div>

Regional Comparative Summary of CBLAD Phase III Checklist Responses

Section 1B - Clearing and Grading Requirements – 8 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
5. Is there an ordinance provision, or other adopted document, that requires that all clearing and grading plans or equivalent (including individual lots) specify limits of clearing and restricts clearing to the minimum necessary for the construction of the project? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____	E&S Art 17, sect 4.1G	Zoning: Sec 126-79.12(B)(1)	Zoning Ordinance, Sec. 6-9(1)		78-1067-1 CK ETS	Zoning Ordinance 23-4.11.2 (30) DSM Article 4 and County Code Section 6A-10(b)(4)(a)(1) & Chapter 8	Zoning Ordinance 28-62(g)(1)a.1.General Performance Criteria
6. Is there an ordinance provision, or other adopted document, that authorizes staff to establish limits on clearing and grading? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____	E&S 45-4b11??	Zoning: Sec 126-79.12(B)(1)(a)	Zoning: Sec. 6-9 (1.1)			Zoning Ordinance 23-4.11.2 (30) County Code Chapter 6A-10(b)(4)(a)(1), Chapter 8 and DSM Article 4	
7. Is there an ordinance provision, or other adopted document, that includes a definition of “construction footprint” and limits clearing and grading to the construction footprint? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____	Ches Bay Zoning, Art 15 (no more disturbance is allowed than necessary)	Caroline Erosion & Sediment Control Ordinance, Sec. 45-4(B)(1)(7)(a)	Zoning Ordinance, Sec. 6-9(1.1): Caroline Erosion & Sediment Control Ordinance, Sec. 45-4(B)(1)(7)(a)	Zoning Ord. 8.4	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	County Code Chapter 6A-10(b)(4)(a)(1)	
8. Is there an ordinance provision, or other adopted document that requires the RPA be physically marked on-site prior to any clearing and/or grading and throughout the development process? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____	Caroline Erosion & Sediment Control Ordinance, Sec. 45-4(B)(1)(7)(a)b	Caroline Erosion & Sediment Control Ordinance, Section 45-4(B)(1)(7)(a) See Note	Caroline Erosion & Sediment Control Ordinance, Section 45-4(B)(1)(7)(a)	Zoning Ord. 8.11.2.2b		Zoning Ordinance 23-4.11.2(13) County Code Chapter 6A-5 & 6A-13(a)(19)	Zoning Ordinance 28-62(g)(1)b.2.General Performance Criteria Design and Construction Standards for Landscaping (DCSL) Section 140 (d) and (e)
9. Is there an ordinance provision, or other adopted document that requires the limits of clearing and grading to be physically marked on-site? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		Zoning Ordinance Sec. 126-79.12(B)(1)(a)	Zoning Ordinance, Sec. 6-9(1.1)	Zoning Ord. 8.11.2	78-1067-1	County Code Chapter 6A-10(b)(4)(a)(1) County Code Chapter 8	
10. Is there an ordinance provision, or other adopted document, that requires documentation of the condition of the RPA to be provided before and after development to ensure that it remains undisturbed? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____						County Code Chapter 6A5(b)(2)	
11. Is there an ordinance provision, or other adopted document, that prohibits clearing and grading on sensitive lands (i.e. steep slopes, highly erodible soils, etc.) other than required RPA features? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Other lands: _____	E&S 45.4b-18: Subdivision 17.8					Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Zoning Ordinance Sec 28-67 Potomac River Resource Protection Overlay District
12. Is there an ordinance provision that designates other sensitive lands, such as steep slopes, highly erodible soils, non-RPA nontidal wetlands, etc. as components of the RPA? Yes <input type="checkbox"/> No <input type="checkbox"/> <div> <ul style="list-style-type: none"> Wetlands Yes <input type="checkbox"/> No <input type="checkbox"/> Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/> Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/> Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/> Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/> Other lands Yes <input type="checkbox"/> No <input type="checkbox"/> </div> Ordinance name and citation: _____ Other adopted document: _____	<ul style="list-style-type: none"> Wetlands: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Steep slopes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/> Highly erodible soils Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other Lands Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Zoning Art 15 Sect 17.5	<ul style="list-style-type: none"> Wetlands: Yes <input type="checkbox"/> No <input type="checkbox"/> Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/> Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/> Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/> Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/> Other Lands Yes <input type="checkbox"/> No <input type="checkbox"/> 	<ul style="list-style-type: none"> Wetlands: Yes <input type="checkbox"/> No <input type="checkbox"/> Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/> Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/> Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/> Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/> Other Lands Yes <input type="checkbox"/> No <input type="checkbox"/> 	<ul style="list-style-type: none"> Wetlands: Yes <input type="checkbox"/> No <input type="checkbox"/> Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/> Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/> Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/> Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/> Other Lands Yes <input type="checkbox"/> No <input type="checkbox"/> 	<ul style="list-style-type: none"> Wetlands: Yes <input type="checkbox"/> No <input type="checkbox"/> Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/> Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/> Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/> Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/> Other Lands Yes <input type="checkbox"/> No <input type="checkbox"/> 	<ul style="list-style-type: none"> Wetlands: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Intermittent streams Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other Lands Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Zoning Ordinance 23-7.1.1	<ul style="list-style-type: none"> Wetlands: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Steep slopes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Intermittent streams Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other Lands Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Sec 28-67 Potomac River Resource Protection Overlay District

Regional Comparative Summary of CBLAD Phase III Checklist Responses

Section 1C - Utility and Easement Requirements (Public and Private) – 4 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
For the purposes of this checklist, public utilities mean those outlined under Section 9 VAC 10-20-150 B 2 of the Regulations: “Construction, installation and maintenance of water, sewer, natural gas, and underground telecommunications and cable television lines, owned, permitted or both by a local government or regional service authority...”							
13. Is there an ordinance provision, or other adopted document, that requires approval of utility installation plans, including temporary construction areas, prior to land disturbance? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		BG Utility Design Standards & Specifications, Sec 1.4.02.A		Zoning Ord. 7.4		Zoning Ordinance Section 23-4.11.2(29)	Zoning Ordinance 28-62(g)(1)d. General Performance Criteria
14. Is there an ordinance provision, or other adopted document, that requires a replanting plan, other than stabilization required for erosion and sediment control, when vegetation is removed for temporary construction easements? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____							
15. Is there an ordinance provision, or other adopted document, that allows or requires the placement of public utilities within the right-of-way for public or private roads or alleys, when present? <i>Score 1 point for allows, 2 points for requires.</i> Yes <input type="checkbox"/> No <input type="checkbox"/> Number of points <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		BG Utility Design Standards & Specifications, Sec 1.3.01			74-161	State Code Section 22-5 Utilities Ordinance.	
Section 1D - Low Impact Development /Better Site Design Concepts – 3 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
For the purposes of this checklist, Low Impact Development (LID) includes those practices that combine hydrologically functional site designs with pollution prevention measures to compensate for land development impacts on hydrology and water quality.							
16. Does the locality provide incentives for retaining natural, undisturbed open space on a site? These incentives may include intensity or density bonuses, stormwater credit, etc. <i>Score 1 point for each type of natural resource retained:</i> <ul style="list-style-type: none">Wetlands Yes <input type="checkbox"/> No <input type="checkbox"/>Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/>Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/>Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/>Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/>Other lands Yes <input type="checkbox"/> No <input type="checkbox"/> Number of points <input type="checkbox"/> Types of incentives provided: _____ Ordinance name and citation: _____ Other adopted document: _____	<ul style="list-style-type: none">Wetlands: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Intermittent streams Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Other Lands Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No. of points 0			<ul style="list-style-type: none">Wetlands: Yes <input type="checkbox"/> No <input type="checkbox"/>Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/>Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/>Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/>Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/>Other Lands Yes <input type="checkbox"/> No <input type="checkbox"/> No. of points 0 Zoning Ord. Article 11	<ul style="list-style-type: none">Wetlands: Yes <input type="checkbox"/> No <input type="checkbox"/>Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/>Intermittent streams Yes <input type="checkbox"/> No <input type="checkbox"/>Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/>Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/>Other Lands Yes <input type="checkbox"/> No <input type="checkbox"/>	<ul style="list-style-type: none">Wetlands: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Intermittent streams Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Other Lands Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No. of points 0	<ul style="list-style-type: none">Wetlands: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Intermittent streams Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>Other Lands Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> No. of points 0 Zoning Ordinance Sec 28-86(g) Landscaping Standards
17. Do local ordinance provisions, or other adopted documents, allow flexibility in practices to enable the implementation of LID practices that limit land disturbance? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____				Zoning Ord. 3.12	LID ORD.		Storm Water Management Ordinance Sec 21.5 2(b)(4)
18. Are there ordinance provisions or other adopted documents that require the incorporation of existing drainage ways and the integration of natural drainage patterns into site drainage plans? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					78-1060 (17) (23)		Storm Water Management Ordinance Sec 21.5 2(a)(2)
Section 1E - Other Standards 19. Are there other ordinance provisions, or other specific standards in other adopted documents that limit land disturbance? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance names and citations: _____ Other adopted document: _____ Other standards: _____				Zoning Ord. 8.11.3.2a	E&S Ordinance, Chesapeake Bay Ord	County Code Chapter 8	Erosion and Sediment Control Ordinance Sec 11-2; Sec 11-12; Sec 11-32 (Phasing of Residential Developments)

Regional Comparative Summary of CBLAD Phase III Checklist Responses

PART 2 - PRESERVE INDIGENOUS VEGETATION – 9 VAC 10-20-120 2 – 18 QUESTIONS							
The preservation of indigenous vegetation can be accomplished through the application of three general techniques included below as three sections. Each of these general techniques is presented below, with examples of more specific requirements that minimize land disturbance. Each affirmative question is worth 2 points, unless otherwise noted. Additionally, space has been provided for the locality to include other options not currently listed and if the Department concurs that these additional provisions contribute to water quality protection, two points will be awarded for each additional provision. The overall minimum score necessary to meet this performance criterion is 22 points .							
Section 2A - Sensitive Land Protection/Preservation – 9 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
20. Is there an ordinance provision, or other adopted document, that requires conservation areas or corridors (i.e. greenways, etc.)? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					78-1060 (25) 78-1062 (13)		
21. Is there an ordinance provision, or other adopted document, that requires riparian vegetated buffers adjacent to non-perennial water bodies or wetlands not required to be included as RPAs? Score three points for an affirmative answer. Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____				Zoning Ord. 8.11.2.1a			Zoning Ordinance Sec 28-67 Potomac River Resource Protection Overlay District & Sec. 28-66. P-TND, Planned-Traditional Neighborhood Development
22. Is there an ordinance provision, or other adopted document, that requires the permanent marking of the RPA boundaries and if so, which zoning districts does this apply to? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Zoning Districts: _____							Zoning Ordinance Sec 28-62(g)(2)f.(6) CRPA Signs
23. Is there an ordinance provision, or other adopted document, that requires a portion of open space, other than RPAs, to be left in natural, vegetated condition? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Percentage to be left natural: _____	Zoning Art 11 Sect 6 & 7 (PU; PMU)				78-73 78-73 (C) (9)		
24. Is there an ordinance provision, or other adopted document, that requires a building setback from the RPA boundary? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Setback width: _____	Zoning Art 15 Sect 17.9F1? (this defines the RPA with a 100-ft buffer but no additional buffer					County Code Section 6A-5(b)(1)(d)	Zoning Ordinance 28-38(k) Performance Regulations
25. Is there an ordinance provision, or other adopted document, that requires a building setback from other sensitive lands such as intermittent streams and non-RPA non-tidal wetlands? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Setback width: _____ Sensitive lands protected: _____	Art 15, Sec 17.7 (Lot sizes)						Zoning Ordinance Sec 28-67 Potomac River Resource Protection Overlay District (adds RPA to intermittent streams which will require RPA setback)
26. Is there an ordinance provision, or other adopted document, that requires the preservation of vegetation on sensitive lands other than required RPA land types? One point for each included: <div><div>• Steep slopes Yes <input type="checkbox"/> No <input type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input type="checkbox"/></div><div>• Floodplains Yes <input type="checkbox"/> No <input type="checkbox"/></div><div>• Wetlands Yes <input type="checkbox"/> No <input type="checkbox"/></div></div> <div>Number of points <input type="checkbox"/></div> Ordinance name and citation: _____ Land types protected: _____	<div><div>• Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Wetlands Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div></div> <div>Number of points_0_</div> Zoning Art 15 sect 6, sect 17.5?? 17.8B2???					<div><div>• Steep slopes Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Floodplains Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Wetlands Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div></div> <div>Number of points_1_</div> Zoning Ordinance 23-7.1.1	<div><div>• Steep slopes Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div><div>• Highly erodible soils Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Floodplains Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></div><div>• Wetlands Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></div></div> <div>Number of points_2_</div> Zoning Ordinance Sec 28-67 Potomac River Resource Protection Overlay District
27. Is there an ordinance provision, or other adopted document, that limits removal of vegetation for temporary construction easements for utilities? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____				Zoning Ord. 8.11.2.1			
28. Is there an ordinance provision, or other adopted document, that limits removal of vegetation for maintenance of utility easements? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____				Zoning Ord. 8.11.2.1			

Regional Comparative Summary of CBLAD Phase III Checklist Responses

Section 2B - Vegetation and Tree Protection Requirements – 7 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
29. Does the locality have a tree protection ordinance that protects existing trees (if permitted by state law)? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____	Subdivision 6-3xxi			Zoning Ord. 8.11.3	78-73	Zoning Ordinance Section 23-5.5.13 & Subdivision Ordinance Section 20-5.1.5	Vegetation Ordinance 24: Article III Tree Preservation (Section 24-21 thru 27)
30. Are there ordinance provisions, or other adopted documents, that include more specific tree preservation requirements for the preservation of stands of trees or contiguous wooded areas? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		Zoning: Sec 126-79.12.B.2.a	Zoning Sec. 6-9(2.1)		78-73	DSM Article 6	
31. Is there an ordinance provision, or other adopted document, that awards credit for maintaining indigenous vegetation when meeting landscaping requirements? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____						Zoning Ordinance Section 23-5.5.1	Zoning Ordinance Sec 28-86(g) Landscaping Standards Section 100 of the DCSL
32. Is there an ordinance provision, or other adopted document, that requires vegetated non-RPA buffers to be left undisturbed? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____						County Code Chapter 6A10(b)(4)(3)	
33. Is there an ordinance provision, or other adopted document, that includes clear language to protect woody vegetation outside of the construction footprint on individual lots or development sites? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		Zoning: Sec 126-79.12.B.2.a	Zoning Sec. 6-9(2.1)	Zoning Ord. 8.11.3.c	Chesbay 78-73	County Code Chapter 6A-10(b)(4)(5)	
34. Is there an ordinance provision, or other adopted document, that requires a landscape maintenance agreement or similar mechanism to protect existing vegetation to be preserved on site throughout the construction process? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					Chesbay 78-73	Office Policy and procedure for site plan approval and enforcement	DCSL Sections 140A and 151(A)
Section 2B - Vegetation and Tree Protection Requirements (continued)							
35. Is there an ordinance provision, or other adopted document, that requires the preservation of existing vegetation in open space as a component of cluster development? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____							
Section 2C - Low Impact Development/Better Site Design Concepts – 1 question							
36. Is there an ordinance provision, or other adopted document, that requires a natural resources (or environmental) assessment as the initial part of the plan of development review process (i.e. pre-submission/ pre-application requirement for site plans, preliminary subdivision plats, etc.) and uses this information in the review of proposed projects to limit the impacts on natural resources? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____	Zoning, Art 15	See Note		Zoning 8.13.1b	78-850	County Code Chapter 6A-5(b)(2)	Zoning Ordinance Sec 28-86(h)(1)b Plan of Development Process
Section 2D - Other Standards							
37. Are there other ordinance provisions, or other specific standards in other adopted documents that preserve indigenous vegetation? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance names and citations: _____ Other adopted document: _____ Other standards: _____						County Code Chapter 6A-10(b)(4)(a)(3)	

Regional Comparative Summary of CBLAD Phase III Checklist Responses

PART 3 - MINIMIZE IMPERVIOUS COVER – 9 VAC 10-20-120 5 – 24 QUESTIONS																								
The minimization of impervious cover can be accomplished through the application of five general techniques included below as five sections. Each of these general techniques is presented below, with examples of more specific requirements that minimize land disturbance. Each affirmative question is worth 2 points, unless otherwise noted. Additionally, space has been provided for the locality to include other options not currently listed and if the Department concurs that these additional provisions contribute to water quality protection, two points will be awarded for each additional provision. <div>The overall minimum score necessary to meet this performance criterion is 28 points.</div>																								
Section 3A - Parking Requirements – 11 questions		Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Stafford																	
For the purposes of this evaluation, the Department considers gravel, asphalt, concrete, and other hard-packed surfaces to be impervious.																								
38. Is there an ordinance provision, or other adopted document, that sets maximum parking space requirements for some or all zoning districts? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Applicable zoning districts: _____		Article 13																						
39. Is there an ordinance provision, or other adopted document, that allows or requires the use of alternative pervious surfaces for required parking and/or overflow parking areas? <div>Score 1 point for “Allows”, and 2 points for “Requires”</div> Ordinance name and citation: _____ Other adopted document: _____			Zoning: Sec 126-79.12(B)(3)(a)			Zoning Ordinance Section 23-5.9.2	Zoning Ordinance Sec 28-102																	
40. Are there ordinance provisions, or other adopted documents, that allow for shared and off-site parking in certain zoning districts, such as commercial and office districts? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Districts where allowed: _____ ----- Is there an ordinance provision, or other adopted document, that allows or requires a percentage of parking spaces for compact cars or motorcycles? Yes <input type="checkbox"/> No <input type="checkbox"/> <div>Score 1 point for “allows”, and 2 points for “requires”</div> Number of points <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Percentage of total: _____ Size of compact car spaces: _____		Article 13?	Zoning: Sec 126-102(B)		Zoning Ord. 3.12.9	Zoning Ordinance Section 23-5.9.2(c)	Zoning Ordinance Sec. 28-66(f) Planned – Traditional Neighborhood Development																	
41. Is there an ordinance provision, or other adopted document, that provides incentives for structural parking versus surface parking? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____																								
42. Is there an ordinance provision, or other adopted document, that limits the width of travel lanes in parking areas to the following chart of minimum widths: <table><tr><td><i>Parking Angle</i></td><td><i>1-way</i></td><td><i>2-way</i></td></tr><tr><td>90 degree</td><td>20 feet</td><td>25 feet</td></tr><tr><td>60 degree</td><td>16 feet</td><td>25 feet</td></tr><tr><td>45 degree</td><td>14 feet</td><td>25 feet</td></tr><tr><td>30 degree</td><td>12 feet</td><td>25 feet</td></tr><tr><td>Parallel</td><td>12 feet</td><td>25 feet</td></tr></table> Score: 1 point if some of the minimum widths are included, 2 points if all minimum widths are included. Number of points: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		<i>Parking Angle</i>	<i>1-way</i>	<i>2-way</i>	90 degree	20 feet	25 feet	60 degree	16 feet	25 feet	45 degree	14 feet	25 feet	30 degree	12 feet	25 feet	Parallel	12 feet	25 feet				78-1063 (4) VDOT Standards	Zoning Ordinance Sec 28-102
<i>Parking Angle</i>	<i>1-way</i>	<i>2-way</i>																						
90 degree	20 feet	25 feet																						
60 degree	16 feet	25 feet																						
45 degree	14 feet	25 feet																						
30 degree	12 feet	25 feet																						
Parallel	12 feet	25 feet																						
43. Is there an ordinance provision, or other adopted document, that allows single travel aisles versus double aisles in parking areas? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					Zoning Ord. 3.12.2	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	DSM Article 5-4.2																	

Regional Comparative Summary of CBLAD Phase III Checklist Responses

Section 3A - Parking Requirements – 11 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
44. Is there an ordinance provision, or other adopted document, that limits the size of parking stalls to 9’ by 18’, for all parking stalls except handicapped stalls? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					VDOT	Zoning Ordinance Section 23-5.9.2(i)	
45. Is there an ordinance provision, or other adopted document, that allows on-street parking to count towards required minimum parking spaces? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					78-114	Zoning Ordinance Section 23-5.9.3 Note 6.	Zoning Ordinance Sec 28-66(f) P-TND.
46. Is there an ordinance provision, or other adopted document, that sets parking space minimums for commercial and office uses to 4 spaces or less per 1000 net square feet? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		Zoning: Sec 126-102(G)		Zoning Ord. 3.12.8	78-114	Zoning Ordinance Section 23.9.5.3 office uses	Zoning Ordinance Chapter 28; Table 7.1 Required Parking Spaces
47. Is there an ordinance provision, or other adopted document, that sets parking space minimums for churches, schools, theaters, etc. to 1 for every 4 fixed seats or less, or 10 spaces or less per 1000 net square feet? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____	Article 13, Sect 1 (theaters 1 per 4; churches 1 per 5			Zoning Ord. 3.12.8	78-115	Zoning Ordinance Section 23-9.5.3 Note 3	Zoning Ordinance Chapter 28; Table 7.1 Required Parking Spaces
Section 3B - Low Impact Development/Better Site Design Concepts – 2 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
<i>For the purpose of this checklist, “lot coverage” means all impervious surfaces, such as buildings, structures, decks, driveways, patios, parking lots and sidewalks, etc.</i>							
48. Is there an ordinance provision, or other adopted document, that sets maximum impervious coverage or lot coverage for lots and/or parcels based on zoning districts? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Zoning districts and percentage of impervious coverage allowed: _____					Zoning: 78 70%		
49. Is there an ordinance provision, or other adopted document, that allows or encourages increased building height, floor area ratio, density, etc. to limit impervious coverage? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____		Zoning Ordinance: Sec 126-78 See Note				Zoning Ordinance Section 23-5.1.6	
50. Is there an ordinance provision, or other adopted document, that allows or encourages the use of vegetated bio-retention facilities to meet parking lot landscaping requirements? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					LID ORD		Zoning Ordinance Sec 28-82 Required Buffers & Design and Construction Standards for Landscaping (DCSL) Section 120.1(f)
Section 3C - Redevelopment or Infill Development Concepts – 3 questions							
51. Are there ordinance provisions that promote infill or redevelopment through techniques such as tax and other local incentives, or through other methods? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____ Promotion methods: _____							
52. Is there an ordinance provision, or other adopted document, that allows or promotes LID practices (ie. green roof, streetscape, bio-retention, etc.) in redevelopment projects in urban areas? <i>Score 1 point for allows, 2 points for promotes</i> Yes <input type="checkbox"/> No <input type="checkbox"/> Number of points <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Allows <input type="checkbox"/> Promotes <input checked="" type="checkbox"/> Number of points <u>2</u> LID ORD		Stormwater Management Ordinance Sec 21.5-4(a)(7)
53. Is there an ordinance provision, or other adopted document that reduces impervious cover on redevelopment projects? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____							Stormwater Management Ordinance Sec 21.5-2(b)(8)

Regional Comparative Summary of CBLAD Phase III Checklist Responses

Section 3D - Road Design Requirements – 4 questions	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
54. Is there an ordinance provision, or other adopted document, that establishes a maximum radii of cul-de-sacs that does not exceed VDOT’s minimum standards (30’ minimum radius/less than 25 dwellings & less than .25 mile in street length; 45’ minimum all other streets)? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document:_____				Subdivision Ord. 8.3.5	Zoning: 78-1063		
55. Is there an ordinance provision, or other adopted document, that permits the pavement width of private roads to be narrower than VDOT standards? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document:_____	Subdivision sect 5.20 (currently do not allow private roads)				Zoning :78		Subdivision Ordinance Sec 22-176 Private Access Easements
56. Is there an ordinance provision, or other adopted document, that limits turn lanes, road widths and other pavement requirements to the minimum VDOT standards? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document:_____				Subdivision Ord. 8.5			
57. Is there an ordinance provision, or other adopted document that allows permeable surfaces for required emergency vehicle access lanes (aside from the main roads)? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document:_____							Ordinance Sec. 12-22 Fire Lanes
Section 3E - Pedestrian Pathways and Residential Driveways – 3 questions							
58. Is there an ordinance provision, or other adopted document, that permits shared driveways? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document:_____	Art 4 Sect 2.11.e					DSM Article 5-2.4, 5-2.8 & 5-1.4A	Subdivision Ordinance Sec 22-217 Shared Driveways
59. Is there an ordinance provision, or other adopted document, that limits sidewalks and other pedestrian pathways to the minimum VDOT standards? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document:_____							
60. Is there an ordinance provision, or other adopted document, that provides for the use of alternative permeable materials for sidewalks and/or driveways? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document:_____							Subdivision Ordinance Sec 22-221 Curb, Gutter & Sidewalks
Section 3F - Other Standards	Caroline Co	Bowling Green	Port Royal	King George Co	Fredericksburg	Spotsylvania	Stafford
61. Are there other ordinance provisions, or other specific standards in other adopted documents that limit impervious cover? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance names and citations: _____ Other adopted document: _____ Other standards: _____		Zoning: Sec 126-79.12(B)(3)(a)			Ches Bay		
SECTION C: GENERAL WATER QUALITY PROTECTION PROVISIONS							
The following questions are worth 2 points each, unless otherwise noted, and any points earned in this section can be added to the overall total for any of the parts under Section II. These questions relate to general water quality protection or improvement provisions or program elements.							
1. Does the locally designated CBPA cover more than 50 percent of the locality’s total land area or greater than 50 percent of the total land area in the Chesapeake Bay watershed? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Documentation: _____		See Note			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	County Code Chapter 6A-2	Zoning Ordinance Sec 28-62(g)(2)f.(6)
2. Does the locally designated CBPA include all land area within a locality or all land area within the Chesapeake Bay watershed? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____		See Note				County Code Chapter 6A-2	Zoning Ordinance Sec 28-62(b) Areas of applicability
3. Is there an ordinance provision, or other adopted document, that provides incentives or requires low impact development (LID) techniques during the plan review process or mandated when technically feasible? <div>Score 2 points for “Provide Incentives”, and 3 for “Requires”</div> <div>Yes <input type="checkbox"/> No <input type="checkbox"/> Number of points <input type="checkbox"/></div> Ordinance name and citation: _____ Other adopted document: _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Number of points: <u>0</u>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Number of points: <u>0</u>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Number of points: <u>0</u>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Number of points: <u>0</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Number of points: <u>0</u>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Number of points: <u>0</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Number of points: <u>2</u> Stormwater Management Ordinance Sec 21.5 4(a)(7)
4. Is there an ordinance provision, or other adopted document, that requires conservation design to be undertaken before land disturbance is approved? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					Zoning		
5. Is there an ordinance provision, or other adopted document, that permits the Purchase or Transfer of Development Rights? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____						County Code Purchase of Development Rights 17A	Purchase of Development Rights Ordinance Chapter 22A
6. Is there an ordinance provision, or other adopted document, that provides incentives for or requires the use of vegetated BMPs or additional vegetation as part of traditional BMPs to enhance their pollutant removal function? Yes <input type="checkbox"/> No <input type="checkbox"/> Ordinance name and citation: _____ Other adopted document: _____					LID ORD.		

Proposed Amendment:

§ 15.2-961.1. Conservation of trees during land development process in localities belonging to a nonattainment area for air quality standards.

A. For purposes of this section, "tree canopy" or "tree cover" includes all areas of canopy coverage by self-supporting and healthy woody plant material exceeding five feet in height, and the extent of planted tree canopy at 20-years maturity.

B. Any locality within Planning District 8 **or 16** that meets the population density criteria of subsection A of § [15.2-961](#) and is classified as an eight-hour non-attainment area for ozone under the federal Clean Air Act and Amendments of 1990, in effect as of July 1, 2008, may adopt an ordinance providing for the conservation of trees during the land development process pursuant to the provisions of this section. In no event shall any local tree conservation ordinance adopted pursuant to this section also impose the tree replacement provisions of § [15.2-961](#).

C. The ordinance shall require that the site plan for any subdivision or development provide for the preservation or replacement of trees on the development site such that the minimum tree canopy or tree cover percentage 20 years after development is projected to be as follows:

1. Ten percent tree canopy for a site zoned business, commercial, or industrial;
2. Ten percent tree canopy for a residential site zoned 20 or more units per acre;
3. Fifteen percent tree canopy for a residential site zoned more than eight but less than 20 units per acre;
4. Twenty percent tree canopy for a residential site zoned more than four but not more than eight units per acre;
5. Twenty-five percent tree canopy for a residential site zoned more than two but not more than four units per acre; and

6. Thirty percent tree canopy for a residential site zoned two or fewer units per acre.
In meeting these percentages, (i) the ordinance shall first emphasize the preservation of existing tree canopy where that canopy meets local standards for health and structural condition, and where it is feasible to do so within the framework of design standards and densities allowed by the local zoning and other development ordinances; and (ii) second, where it is not feasible in whole or in part for any of the justifications listed in subsection E to preserve existing canopy in the required percentages listed above, the ordinance shall provide for the planting of new trees to meet the required percentages.

D. Except as provided in subsection E, the percentage of the site covered by tree canopy at the time of plan submission shall equate to the minimum portion of the requirements identified in subsection C that shall be provided through tree preservation. This portion of the canopy requirements shall be identified as the "tree preservation target" and shall be included in site plan calculations or narratives demonstrating how the overall requirements of subsection C have been met.

E. The ordinance shall provide deviations, in whole or in part, from the tree preservation target defined in subsection D under the following conditions:

1. Meeting the preservation target would prevent the development of uses and densities otherwise allowed by the locality's zoning or development ordinance.

2. The predevelopment condition of vegetation does not meet the locality's standards for health and structural condition.

3. Construction activities could be reasonably expected to impact existing trees to the extent that they would not likely survive in a healthy and structurally sound manner. This includes activities that would cause direct physical damage to the trees, including root systems, or cause environmental changes that could result in or predispose the trees to structural and health problems.

If, in the opinion of the developer, the project cannot meet the tree preservation target due to the conditions described in subdivision 1, 2, or 3, the developer may request a deviation from the preservation requirement in subsection D. In the request for deviation, the developer shall provide a letter to the locality that provides justification for the deviation, describes how the deviation is the minimum necessary to afford relief, and describes how the requirements of subsection C will be met through tree planting or a tree canopy bank or fund established by the locality. Proposed deviations shall be reviewed by the locality's urban forester, arborist, or equivalent in consultation with the locality's land development or licensed professional civil engineering review staff. The locality may propose an alternative site design based upon adopted land development practices and sound vegetation management practices that take into account the relationship between the cost of conservation and the benefits of the trees to be preserved as described in ANSI A300 (Part 5) - 2005 Management: Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices, Management of Trees and Shrubs During Site Planning, Site Development, and Construction, Annex A, A-1.5, Cost Benefits Analysis (or the latest version of this standard). The developer shall consider the alternative and redesign the plan accordingly, or elect to satisfy the unmet portion of the preservation threshold through on-site tree planting or through the off-site planting mechanisms identified in subsection G, so long as the developer provides the locality with an explanation of why the alternative design recommendations were rejected. Letters of explanation from the developer shall be prepared and certified by a licensed professional engineer as defined in § [54.1-400](#). If arboricultural issues are part of explanation then the letter shall be signed by a Certified Arborist who has taken and passed the certification examination sponsored by the International Society of Arboriculture and who maintains a valid certification status or by a Registered Consulting Arborist as designated by the American Society of Consulting Arborists. If arboricultural issues are the sole subject of the letter of explanation then certification by a licensed professional engineer shall not be required.

F. The ordinance shall provide for deviations of the overall canopy requirements set forth in subsection C to allow for the preservation of wetlands, the development of farm land or other areas previously devoid of healthy and/or suitable tree canopy, or where the strict application of the requirements would result in unnecessary or unreasonable hardship to the developer.

G. The ordinance shall provide for the establishment of a tree canopy bank or fund whereby any portion of the tree canopy requirement that cannot be met on-site may be met through off-site tree preservation or tree planting efforts. Such provisions may be offered where it can be demonstrated that application of the requirements of subsection C would cause irresolvable conflicts with other local site development requirements, standards, or comprehensive planning goals, where sites or portions of sites lack sufficient space for future tree growth, where planting spaces will not provide adequate space for healthy root development, where trees will cause unavoidable conflicts with underground or overhead utilities, or where it can be demonstrated that trees are likely to cause damage to public infrastructure. The ordinance may utilize any of the following off-site canopy establishment mechanisms:

1. A tree canopy bank may be established in order for the locality to facilitate off-site tree preservation, tree planting, stream bank, and riparian restoration projects. Banking efforts shall provide tree canopy that is preserved in perpetuity through conservation easements, deed restrictions, or similar protective mechanisms acceptable to the locality. Projects used in off-site banking will meet the same ordinance standards established for on-site tree canopy; however, the locality may also require the submission of five-year management plans and funds to ensure the execution of maintenance and management obligations identified in those plans. Any such bank shall occur within the same nonattainment area in which the locality approving the tree banking is situated.

2. A tree canopy fund may be established to act as a fiscal mechanism to collect, manage, and disburse fees collected from developers that cannot provide full canopy requirements on-site. The locality may use this fund directly to plant trees on public property, or the locality may elect to disburse this fund to community-based organizations exempt from taxation under § 501 (c) (3) of the Internal Revenue Code with tree planting or community beautification missions for tree planting programs that benefit the community at large. For purposes of establishing consistent and predictable fees, the ordinance shall establish cost units that are based on average costs to establish 20-year canopy areas using two-inch caliper nursery stock trees. Any funds collected by localities for these purposes shall be spent within a five-year period established by the collection date, or the locality shall return such funds to the original contributor, or legal successor.

H. The following uses shall be exempt from the requirements of any ordinance promulgated under this section: bona fide silvicultural activity as defined by § [10.1-1181.1](#) and the areas of sites included in lakes, ponds, and the normal water elevation area of stormwater retention facilities. The ordinance shall modify the canopy requirements of dedicated school sites, playing fields, and other nonwooded active recreation areas by allowing these and other facilities and uses of a similar nature to provide 10 percent tree canopy 20 years after development.

I. 1. In recognition of the added benefits of tree preservation, the ordinance shall provide for an additional tree canopy credit of up to one and one-quarter times the canopy area at the time of plan submission for individual trees or the coalesced canopy of forested areas preserved from the predevelopment tree canopy.

2. The following additional credits may be provided in the ordinance in connection with tree preservation:

- a. The ordinance may provide canopy credits of up to one and one-half times the actual canopy area for the preservation of forest communities that achieve environmental, ecological, and wildlife conservation objectives set by the locality. The ordinance may establish minimal area, dimensional and viability standards as prerequisites for the application of credits. Forest communities shall be identified using the nomenclature of either the federal National Vegetation Classification System (FGDC-STD-005, or latest version) or the Natural Communities of Virginia Classification of Ecological Community Groups, Second Approximation (Version 2.2, or latest version).

- b. The ordinance may provide canopy credits of up to three times the actual canopy area of trees that are officially designated for preservation in conjunction with local tree conservation ordinances based on the authority granted by § [10.1-1127.1](#).

J. The following additional credits shall be provided in the ordinance in connection with tree planting:

1. The ordinance shall provide canopy credits of one and one-half the area normally projected for trees planted to absorb or intercept air pollutants, tree species that produce lower levels of reactive volatile organic compounds, or trees that act to reduce air pollution or greenhouse gas emissions by conserving the energy used to cool and heat buildings.

2. The ordinance shall provide canopy credits of one and one-quarter the area normally projected for trees planted for water quality-related reforestation or afforestation projects, and for trees planted in low-impact development and bioretention water quality facilities. The low-impact development practices and designs shall conform to local standards in order for these supplemental credits to apply.
 3. The ordinance shall provide canopy credits of one and one-half the area normally projected for native tree species planted to provide food, nesting, habitat, and migration opportunities for wildlife. These canopy credits may also apply to cultivars of native species if the locality determines that such a cultivar is capable of providing the same type and extent of wildlife benefit as the species it is derived from.
 4. The ordinance shall provide canopy credits of one and one-half the area normally projected for use of native tree species that are propagated from seed or tissue collected within the mid-Atlantic region.
 5. The ordinance shall provide canopy credits of one and one-quarter the area normally projected for the use of cultivars or varieties that develop desirable growth and structural patterns, resist decay organisms and the development of cavities, show high levels of resistance to disease or insect infestations, or exhibit high survival rates in harsh urban environments.
- K. Tree preservation areas and individual trees may not receive more than one application of additional canopy credits provided in subsection I. Individual trees planted to meet these requirements may not receive more than two categories of additional canopy credits provided in subsection J. Canopy credits will only be given to trees with trunks that are fully located on the development site, or in the case of tree banking projects only to trees with trunks located fully within easements or other areas protected by deed restrictions listed in subsection G.
- L. All trees planted for tree cover credits shall meet the specifications of the American Association of Nurserymen and shall be planted in accordance with the publication entitled "Tree and Shrub Planting Guidelines," published by the Virginia Cooperative Extension.
- M. In order to provide higher levels of biodiversity and to minimize the spread of pests and diseases, or to limit the use of species that cause negative impacts to native plant communities, cause damage to nearby structures, or possess inherent physiological traits that prone trees to structural failure, the ordinance may designate species that cannot be used to meet tree canopy requirements or designate species that will only receive partial 20-year tree canopy credits.
- N. The locality may allow the use of tree seedlings for meeting tree canopy requirements in large open spaces, low-density residential settings, or in low-impact development reforestation/afforestation projects. In these cases, the ordinance shall allow the ground surface area of seedling planting areas to equate to a 20-year canopy credit area. Tree seedling plantings will be comprised of native species and will be planted in densities that equate to 400 seedlings per acre, or in densities specified by low-impact development designs approved by the locality. The locality may set standards for seedling mortality rates and replacement procedures if unacceptable rates of mortality occur. The locality may elect to allow native woody shrubs or native woody seed mix to substitute for tree species as long as these treatments do not exceed 33 percent of the overall seedling planting area. The number of a single species may not exceed 10 percent of the overall number of trees or shrubs planted to meet the provisions of this subsection.
- O. The following process shall be used to demonstrate achievement of the required percentage of tree canopy listed in subsection C:
- I. The site plan shall graphically delineate the edges of predevelopment tree canopy, the proposed limits of disturbance on grading or erosion and sedimentation control plans, and the location of tree

protective fencing or other tree protective devices allowed in the Virginia Erosion and Sediment Control Handbook.

2. Site plans proposing modification to tree canopy requirements or claiming supplemental tree canopy credits will require a text narrative.

3. The site plan shall include the 20-year tree canopy calculations on a worksheet provided by the locality.

4. Site plans requiring tree planting shall provide a planting schedule that provides botanical and common names of trees, the number of trees being planted, the total of tree canopy area given to each species, variety or cultivars planted, total of tree canopy area that will be provided by all trees, planting sizes, and associated planting specifications. The site plan will also provide a landscape plan that delineates where the trees shall be planted.

P. The ordinance shall provide a list of commercially available tree species, varieties, and cultivars that are capable of thriving in the locality's climate and ranges of planting environments. The ordinance will also provide a 20-year tree canopy area credit for each tree. The amount of tree canopy area credited to individual tree species, varieties, and cultivars 20 years after they are planted shall be based on references published or endorsed by Virginia academic institutions such as the Virginia Polytechnic Institute and State University and accepted by urban foresters, arborists, and horticulturalists as being accurate for the growing conditions and climate of the locality.

Q. The ordinance shall establish standards of health and structural condition of existing trees and associated plant communities to be preserved. The ordinance may also identify standards for removal of trees or portions of trees that are dead, dying, or hazardous due to construction impacts. Such removal standards may allow for the retention of trunk snags where the locality determines that these may provide habitat or other wildlife benefits and do not represent a hazardous condition. In the event that existing tree canopy proposed to be preserved for tree canopy credits dies or must be removed because it represents a hazard, the locality may require the developer to remove the tree, or a portion of the tree and to replace the missing canopy area by the planting of nursery stock trees, or if a viable alternative, by tree seedlings. Existing trees that have been granted credits will be replaced with canopy area determined using the same supplemental credit multipliers as originally granted for that canopy area.

R. Penalties for violation of ordinances adopted pursuant to this section shall be the same as those applicable to violations of zoning ordinances of the locality.

S. In no event shall any local tree conservation ordinance adopted pursuant to this section exceed the requirements set forth herein; however, any local ordinance adopted pursuant to the provisions of § [15.2-961](#) prior to July 1, 1990, may adopt the tree conservation provisions of this section based on 10-year minimum tree canopy requirements.

T. Nothing in this section shall invalidate any local ordinance adopted pursuant to § [15.2-961](#).

- **Do not collect plants from the wild**
- **Buy nursery-propagated plant material**
- **Help prevent establishment of non-native species in natural communities**

FOR MORE INFORMATION ON NATIVE PLANTS:

Virginia Department of Conservation and Recreation
Natural Heritage Program
217 Governor Street
Richmond, VA 23219
(804) 786-7951
www.dcr.state.va.us/dnh/

For a list of nurseries that propagate native plants:

Virginia Native Plant Society
400 Blandy Farm Lane, Unit 2
Boyce, VA 22620
(540) 568-8679
vnpsofc@shentel.net
www.vnps.org

For a list of nurseries in a particular region of Virginia contact:

The Virginia Nurseryman's Association*
383 Coal Hollow Road
Christiansburg, VA 24062-0278
(540) 382-0943
vna@swva.net

*List includes association members only.

ABOUT THE PROJECT

This project is the result of a collaboration between the Virginia Department of Conservation and Recreation and the Virginia Native Plant Society and was made possible by a grant from the National Fish and Wildlife Foundation. Funds were also contributed by the Virginia Nurseryman's Association, the Virginia Chapter of the American Society of Landscape Architects and the Lewis Ginter Botanical Garden. In addition to those three organizations, the sponsors extend their considerable appreciation to the other collaborators who provided valuable advice and assistance throughout the life of the project:

The Nature Conservancy-Virginia Chapter
Virginia Polytechnic Institute and State University,
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Virginia Department of Transportation

Project participants share a commitment to protect native plant habitats, especially those that support rare, threatened or endangered species. The use of native plant species, especially plants propagated from local populations, in land management, conservation, restoration and horticultural projects will help maintain the ecological integrity of natural areas and preserve native biodiversity.



Chesapeake Bay Program
A Watershed Partnership



Virginia
Native
Plant
Society
Conserving Wildflowers
and Wild Places
Education-Research-Advocacy-Protection-Rescue-Propagation



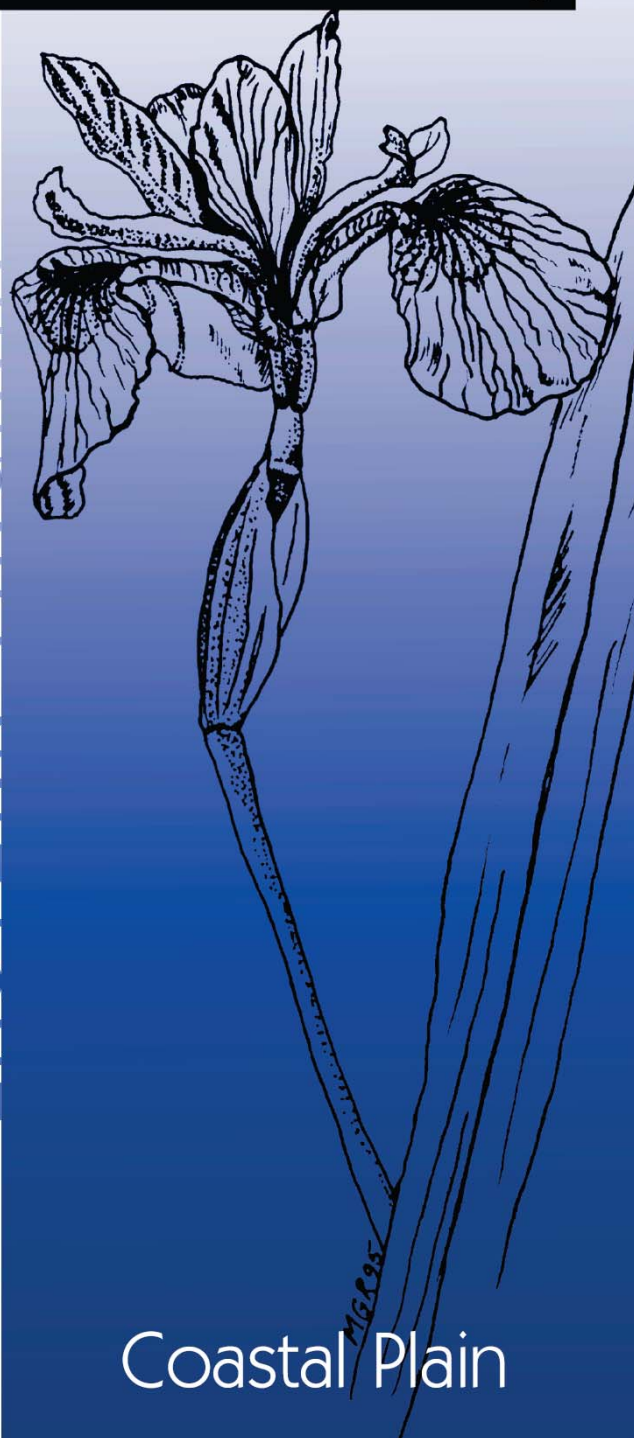
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

12/01

Native Plants for Conservation, Restoration and Landscaping

Celebrate and Preserve Our Natural Heritage

EASTERN VIRGINIA



Coastal Plain

OUR NATURAL HERITAGE

Native wildflowers, shrubs and trees are natural heirlooms, handed down to us from a time before recorded history. Using native plants in even the smallest garden can create miniature landscapes possessing the charm and character unique to a region's natural history. With some simple changes, our traditional lawns and gardens can expand to include these local heirlooms, providing us with beauty, solace and conversation, as well as contributing to the conservation of native species.

Indeed, landscaping with native plants, whether in a private garden, on commercial property or in public parks, will help to preserve species. Natural habitats for some of our native plants are rapidly being lost. But there are other reasons for planting native wildflowers, grasses, ferns, shrubs and trees: They can match the finest cultivated plants in beauty and may surpass them in ruggedness and resistance to insects and diseases.

Native: species naturally occurring in the region in which they evolved (indigenous)

Alien: species introduced to a new region by humans, either deliberately or accidentally (exotic, non-native)

WHAT ARE NATIVES?

Native species are those that occur in the region in which they have evolved. Plants and animals evolve in specific habitats over extended periods of time in response to physical and biotic processes that are characteristic of that place: the climate; the soils; the seasonal rainfall, drought, and frost; and interactions with other species occupying those habitats. They thus possess certain traits that make them uniquely adapted to local conditions.

In North America, plants are considered to be native if they occurred here prior to European settlement. This distinction is made because of the many changes in the flora that have occurred since the arrival of European settlers. Since then many more plants have been deliberately and accidentally introduced to North America from distant shores.

But alien species do not come only from distant countries. They may be introduced from a different region of the same country. For instance, a species native to the forests of the west coast of North America would be considered alien if found on the east coast where it was not a constituent of the regional flora.

NATIVES VS. ALIENS

While many alien plants are beneficial and have little or no effect on the natural environment, a few invasive alien species pose serious threats to both natural communities and rare species. Because of a lack of natural controls like insect pests and competitors, some alien plants are able to escape our gardens, establish in a new area, then displace the native plant species growing there. What was a finely woven and diverse natural community may become a monoculture dominated by the invasive alien plant. Along with the displacement of native plant species from these natural habitats comes the loss of many flying, crawling and burrowing creatures that relied on native plants for food, cover and shelter.

Scientific Name	Common Name	Uses				Light			Moisture		
		W	H	C	D	S	P	F	L	M	H
<i>Leucothoe racemosa</i>	fetterbush, sweetbells	•	•	•		•	•		•	•	
<i>Lindera benzoin</i>	spicebush	•	•	•		•	•		•	•	
<i>Lyonia lucida</i>	shining fetterbush	•	•	•		•	•		•	•	
<i>Myrica cerifera</i>	Southern wax myrtle	•	•	•		•	•		•	•	
<i>Myrica heterophylla</i>	Southern bayberry	•	•	•		•	•		•	•	
<i>Myrica pensylvanica</i>	Northern bayberry	•	•	•		•	•		•	•	
<i>Rhododendron atlanticum</i>	dwarf azalea, coast azalea	•	•	•		•	•		•	•	
<i>Rhododendron periclymenoides</i>	pinxter flower	•	•	•		•	•		•	•	
<i>Rhododendron viscosum</i>	swamp azalea	•	•	•		•	•		•	•	
<i>Rhus copallinum</i>	winged sumac	•	•	•		•	•		•	•	
<i>Rosa carolina</i>	pasture rose	•	•	•		•	•		•	•	
<i>Salix humilis</i>	prairie willow	•	•	•		•	•		•	•	
<i>Salix sericea</i>	silky willow	•	•	•		•	•		•	•	
<i>Sambucus canadensis</i>	common elderberry	•	•	•		•	•		•	•	
<i>Stewartia malacodendron*</i>	silky camelia	•	•	•		•	•		•	•	
<i>Vaccinium corymbosum</i>	highbush blueberry	•	•	•		•	•		•	•	
<i>Viburnum dentatum</i>	arrow-wood viburnum	•	•	•		•	•		•	•	
<i>Viburnum prunifolium</i>	black-haw viburnum	•	•	•		•	•		•	•	
Small trees											
<i>Amelanchier arborea</i>	downy serviceberry	•	•	•		•	•		•	•	
<i>Amelanchier canadensis</i>	Canada serviceberry	•	•	•		•	•		•	•	
<i>Asimina triloba</i>	paw paw	•	•	•		•	•		•	•	
<i>Cercis canadensis</i>	redbud (Eastern)	•	•	•		•	•		•	•	
<i>Chionanthus virginicus</i>	fringetree	•	•	•		•	•		•	•	
<i>Cornus amomum</i>	silky dogwood	•	•	•		•	•		•	•	
<i>Cornus florida</i>	flowering dogwood	•	•	•		•	•		•	•	
<i>Euonymus atropurpureus</i>	wahoo	•	•	•		•	•		•	•	
<i>Ilex opaca</i>	American holly	•	•	•		•	•		•	•	
<i>Magnolia virginiana</i>	sweetbay magnolia	•	•	•		•	•		•	•	
<i>Morus rubra</i>	red mulberry	•	•	•		•	•		•	•	
<i>Ostrya virginiana</i>	Eastern hop-hornbeam	•	•	•		•	•		•	•	
<i>Persea borbonia</i>	redbay, sweet bay	•	•	•		•	•		•	•	
<i>Prunus americana</i>	American wild plum	•	•	•		•	•		•	•	
<i>Rhus glabra</i>	smooth sumac	•	•	•		•	•		•	•	
<i>Rhus hirta</i> (R. typhina)	staghorn sumac	•	•	•		•	•		•	•	
<i>Salix nigra</i>	black willow	•	•	•		•	•		•	•	
Medium to Large Trees											
<i>Acer rubrum</i>	red maple	•	•	•		•	•		•	•	
<i>Betula nigra</i>	river birch	•	•	•		•	•		•	•	
<i>Carya alba</i>	mockernut hickory	•	•	•		•	•		•	•	
<i>Carya glabra</i>	pignut hickory	•	•	•		•	•		•	•	
<i>Chamaecyparis thyoides*</i>	Atlantic white cedar	•	•	•		•	•		•	•	
<i>Diospyros virginiana</i>	persimmon	•	•	•		•	•		•	•	
<i>Fagus grandifolia</i>	American beech	•	•	•		•	•		•	•	
<i>Fraxinus americana</i>	white ash	•	•	•		•	•		•	•	
<i>Fraxinus pensylvanica</i>	green ash	•	•	•		•	•		•	•	
<i>Juglans nigra</i>	black walnut	•	•	•		•	•		•	•	
<i>Juniperus virginiana</i>	red cedar (Eastern)	•	•	•		•	•		•	•	
<i>Liquidambar styraciflua</i>	sweetgum	•	•	•		•	•		•	•	
<i>Liriodendron tulipifera</i>	tulip-tree	•	•	•		•	•		•	•	
<i>Nyssa aquatica</i>	water tupelo	•	•	•		•	•		•	•	
<i>Nyssa sylvatica</i>	black gum	•	•	•		•	•		•	•	
<i>Oxydendrum arboreum</i>	sourwood	•	•	•		•	•		•	•	
<i>Pinus echinata</i>	shortleaf pine	•	•	•		•	•		•	•	
<i>Pinus taeda</i>	loblolly pine	•	•	•		•	•		•	•	
<i>Pinus virginiana</i>	Virginia pine	•	•	•		•	•		•	•	
<i>Platanus occidentalis</i>	sycamore	•	•	•		•	•		•	•	
<i>Prunus serotina</i>	wild black cherry	•	•	•		•	•		•	•	
<i>Quercus alba</i>	white oak	•	•	•		•	•		•	•	
<i>Quercus coccinea</i>	scarlet oak	•	•	•		•	•		•	•	
<i>Quercus falcata</i>	Southern red oak	•	•	•		•	•		•	•	
<i>Quercus michauxii</i>	swamp chestnut oak	•	•	•		•	•		•	•	
<i>Quercus montana</i>	chestnut oak	•	•	•		•	•		•	•	
<i>Quercus nigra</i>	water oak	•	•	•		•	•		•	•	
<i>Quercus palustris</i>	pin oak	•	•	•		•	•		•	•	
<i>Quercus phellos</i>	willow oak	•	•	•		•	•		•	•	
<i>Quercus rubra</i>	Northern red oak	•	•	•		•	•		•	•	
<i>Quercus stellata</i>	post oak	•	•	•		•	•		•	•	
<i>Quercus velutina</i>	black oak	•	•	•		•	•		•	•	
<i>Sassafras albidum</i>	sassafras	•	•	•		•	•		•	•	
<i>Taxodium distichum</i>	bald cypress	•	•	•		•	•		•	•	

* May be aggressive in garden setting.

* Due to the rarity and sensitivity of habitat in Virginia, these species are recommended for horticultural use only.

Planting these species in natural areas could be detrimental to the survival of native populations.

Scientific Name	Common Name	Uses				Light			Moisture		
		W	H	C	D	S	P	F	L	M	H
<i>Viola cucullata</i>	marsh blue violet	•	•	•						•	
<i>Viola pedata</i>	bird's foot violet	•	•				•	•	•		
<i>Yucca filamentosa</i>	common yucca	•							•	•	
<i>Zephyranthes atamasco</i>	Atamasco lily		•	•			•	•	•	•	
Ferns and fern allies											
<i>Adiantum pedatum</i>	maidenhair fern		•	•		•				•	
<i>Asplenium platyneuron</i>	ebony spleenwort		•			•	•			•	
<i>Athyrium asplenoides</i>	Southern ladyfern		•	•		•				•	•
<i>Onoclea sensibilis</i> +	sensitive fern		•	•			•	•		•	•
<i>Osmunda cinnamomea</i>	cinnamon fern		•	•		•	•			•	•
<i>Osmunda regalis</i>	royal fern		•	•						•	•
<i>Polystichum acrostichoides</i>	Christmas fern		•	•		•				•	
<i>Thelypteris palustris</i>	marsh fern		•				•	•		•	•
<i>Woodwardia virginica</i> +	Virginia chain fern		•	•		•	•	•		•	•
Grasses, sedges & rushes											
<i>Agrostis perennans</i>	autumn bentgrass			•		•	•	•	•	•	•
<i>Andropogon glomeratus</i>	bushy bluestem		•	•			•	•		•	•
<i>Andropogon virginicus</i>	broomsedge		•	•			•	•		•	•
<i>Carex crinita</i> var. <i>crinita</i>	long hair sedge	•	•	•			•	•		•	•
<i>Carex lurida</i>	sallow sedge	•	•	•			•	•		•	•
<i>Carex stricta</i>	tussock sedge	•	•	•			•	•		•	•
<i>Chasmanthium latifolium</i>	river oats		•	•		•	•	•		•	•
<i>Danthonia sericea</i>	silky oatgrass	•	•	•			•	•		•	•
<i>Danthonia spicata</i>	poverty oatgrass	•	•	•			•	•		•	•
<i>Dichanthelium clandestinum</i>	deer-tongue		•	•			•	•		•	•
<i>Dichanthelium commutatum</i>	variable panicgrass	•	•	•	•	•	•	•		•	•
<i>Dulichium arundinaceum</i>	dwarf bamboo	•	•	•			•	•		•	•
<i>Elymus virginicus</i>	Virginia wild rye	•	•	•			•	•		•	•
<i>Juncus canadensis</i>	Canada rush	•	•	•						•	•
<i>Juncus effusus</i>	soft rush	•	•	•						•	•
<i>Leersia oryzoides</i>	rice cutgrass	•	•	•						•	•
<i>Panicum amarum</i>	coastal panic grass	•	•	•						•	•
<i>Panicum virgatum</i>	switch grass	•	•	•	•					•	•
<i>Saccharum giganteum</i>	giant plume grass	•	•	•						•	•
<i>Schizachyrium scoparium</i>	little bluestem	•	•	•	•					•	•
<i>Scirpus cyperinus</i>	woolgrass bulrush	•	•	•						•	•
<i>Sorghastrum nutans</i>	Indian grass	•	•	•	•					•	•
<i>Sparganium americanum</i>	American bur-reed	•	•	•						•	•
<i>Tridens flavus</i>	redtop	•	•	•	•					•	•
<i>Tripsacum dactyloides</i>	gama grass	•	•	•	•					•	•
<i>Typha latifolia</i>	broad-leaved cattail	•	•	•						•	•
<i>Zizania aquatica</i>	wild rice	•	•	•						•	•
Vines											
<i>Bignonia capreolata</i>	crossvine	•	•	•		•	•			•	•
<i>Decumaria barbara</i>	climbing hydrangea		•	•		•	•			•	•
<i>Gelsemium sempervirens</i>	Carolina jasmine	•	•	•		•	•			•	•
<i>Lonicera sempervirens</i>	trumpet honeysuckle	•	•	•						•	•
<i>Parthenocissus quinquefolia</i>	Virginia creeper	•	•	•			•	•		•	•
<i>Wisteria frutescens</i>	Atlantic wisteria	•	•	•			•	•		•	•
Shrubs											
<i>Alnus serrulata</i>	common alder	•	•	•		•	•			•	•
<i>Aronia arbutifolia</i>	red chokeberry		•	•		•	•			•	•
<i>Baccharis halimifolia</i>	high tide bush		•	•			•			•	•
<i>Callicarpa americana</i>	American beautyberry	•	•	•			•			•	•
<i>Castanea pumila</i>	Allegheny chinkapin	•	•	•		•	•			•	•
<i>Ceanothus americanus</i>	New Jersey tea	•	•	•			•	•		•	•
<i>Cephalanthus occidentalis</i>	buttonbush		•	•			•			•	•
<i>Clethra alnifolia</i>	sweet pepper-bush	•	•	•		•	•			•	•
<i>Gaultheria procumbens</i>	wintergreen	•	•	•		•	•			•	•
<i>Gaylussacia baccata</i>	black huckleberry	•	•	•		•	•			•	•
<i>Gaylussacia frondosa</i>	dangleberry	•	•	•		•	•			•	•
<i>Hamamelis virginiana</i>	witch hazel		•	•		•	•			•	•
<i>Ilex decidua</i>	possumhaw	•	•	•		•	•			•	•
<i>Ilex glabra</i>	inkberry	•	•	•		•	•			•	•
<i>Ilex verticillata</i>	winterberry	•	•	•		•	•			•	•
<i>Ilex vomitoria</i>	Yaupon holly	•	•	•		•	•			•	•
<i>Itea virginica</i>	Virginia willow	•	•	•		•	•			•	•
<i>Iva frutescens</i>	marsh elder	•	•	•			•			•	•
<i>Kalmia latifolia</i>	mountain laurel	•	•	•		•	•			•	•

In contrast to invasive alien species, other non-native plants are unable to thrive without extra effort by gardeners. For instance, they may originate in regions with abundant rainfall and soils rich in nutrients. If then introduced into a drier region with less fertile soils, they may require additional watering and fertilizer. The natural defenses that plants evolve in their original habitats may not protect them in a new environment, requiring the application of pesticides to aid their growth. The benefit of growing plants within the region in which they evolved is that they are more likely to thrive under the local conditions requiring less attention, labor and expensive additives.



BASICS ABOUT LANDSCAPING WITH NATIVES

When landscaping with natives, match the plants to the correct region, moisture and light conditions. Start with this brochure and study the names of the plants native to your region, and the sunlight and moisture regimes they prefer. Refer to field guides and books of natural history to learn which plants will fit within your planting scheme and provide specific benefits to the wildlife in your area. Plan to texture your landscape with a combination of flowers, shrubs and trees that would occur together naturally. Visit a natural area in your region and observe common plant associations, spatial groupings and habitat conditions. Whether you start small or go all out, always purchase your native plants and seeds from reputable sources that propagate their own plants, preferably from local sources.

NATIVES FOR WILDLIFE

Plants and animals evolve together to create unique natural communities, weaving a complex web of interrelationships. Flowers often bloom and fruits ripen in synchrony with the needs of the animals that pollinate the flowers and disperse the seeds. A butterfly feeds on the nectar of a certain flower and in turn pollinates the plant. To reap the greatest benefit, the flower must bloom and the butterfly emerge simultane-

ously. Later the flower goes to seed, coincidentally when songbirds are fattening for the autumn migration. Gorging themselves, the birds scatter much of what they fail to eat, thus helping disperse the plant's seed.

Alien plant species rarely keep time according to the internal clocks of our native wildlife. Their flowers may bloom too early or late, their fruits grow too large for resident birds to carry, their petals too long for a local nectar feeder to probe, and their smell and texture unrecognizable to a butterfly in search of a host plant on which to lay her eggs.

The greater the variety of plants, the more likely uncommon species will be attracted to your yard. Certain butterflies will hatch and feed only on one type of host plant. When you plant a variety of host and nectar plants, you may see the entire life cycle of several species of butterflies. Keep in mind butterflies and hummingbirds prefer different flowers. Songbirds, too, will visit wildflowers during the spring and summer nesting season to feed on insects and spiders and carry them back to their young. Later they will visit for the dried seeds to fuel them for long journeys to southern wintering grounds. Trees for nesting, shrubs for shelter and water for bathing will further enhance a backyard wildlife preserve.

COASTAL PLAIN



Virginia is divided into several physiographic provinces based on geologic history. Each province has characteristic topography, soil pH, soil depth, elevation and hydrology. These characteristics combine to influence the species of plants and animals found there. Virginia is unique, encompassing parts of five of these provinces, and thus has a greater variety of natural landscapes than any other eastern state.

Virginia's Coastal Plain is bordered by the fall line to the west and by the Atlantic Ocean, the Chesapeake Bay and its tributaries to the east. This is the youngest of the physiographic provinces, formed by sediments eroded from the Appalachian Highlands and deposited along the Atlantic shoreline. The Coastal Plain varies in topography from north to south. The northern Coastal Plain consists of the three peninsulas formed between the four major tributaries of the Chesapeake Bay; the Potomac, the Rappahannock, the York and the James rivers. In the north, the Northern Neck is somewhat hilly and well drained. As you move southward across the Middle Peninsula and Lower Peninsula where the topography flattens until south of the James River where the landscape is basically level. The Eastern Shore, separated from the mainland by the Chesapeake Bay, exhibits little topographic relief. These subtle differences in topography and the variety of fresh, brackish, and saltwater systems from ocean and inland bay to rivers, ponds and bogs, have contributed to the great variety of natural communities found on the Coastal Plain.

Recommended Uses

W = wildlife
H = horticulture
C = conservation
D = domestic livestock forage

Minimum Light Requirements

S = shade
P = partial sun
F = full sun

Native Regions

C = Coastal Plain
P = Piedmont
M = Mountains and Valley

Moisture Requirements

L = low
M = medium
H = high

Scientific Name	Common Name	Uses				Light			Moisture		
		W	H	C	D	S	P	F	L	M	H
Forbs											
<i>Acorus americanus</i>	sweet flag		•	•				•	•		•
<i>Anemone quinquefolia</i>	wood anemone		•				•	•	•		•
<i>Aquilegia canadensis</i>	wild columbine	•	•					•	•	•	
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit		•			•					•
<i>Asclepias incarnata</i>	swamp milkweed	•	•	•				•	•		•
<i>Asclepias tuberosa</i>	butterfly weed	•	•	•				•	•		
<i>Aster concolor</i>	Eastern silvery aster	•	•	•							
<i>Aster cordifolius</i>	heart-leaved aster		•	•				•	•		•
<i>Aster novi-belgii</i>	New York aster	•	•	•				•	•	•	
<i>Aster pilosus</i>	white heath aster	•	•	•							
<i>Baptisia tinctoria</i>	yellow wild-indigo	•	•					•	•	•	
<i>Caltha palustris</i>	marsh marigold		•	•				•	•		•
<i>Chamaecrista fasciculata+</i>	partridge pea	•	•	•				•	•		
<i>Chelone glabra</i>	white turtlehead		•	•		•	•				•
<i>Chrysogonum virginianum</i>	green and gold		•	•		•				•	
<i>Chrysopsis mariana</i>	Maryland golden aster		•	•				•	•	•	
<i>Cimicifuga racemosa</i>	black snakeroot		•	•			•	•			
<i>Clipea mariana</i>	Maryland butterfly pea		•	•		•				•	
<i>Coreopsis tripteris</i>	tall coreopsis		•	•				•	•	•	
<i>Coreopsis verticillata</i>	threadleaf coreopsis		•	•				•	•	•	
<i>Desmodium paniculatum</i>	narrow-leaf tick trefoil	•	•	•		•					
<i>Eupatorium coelestinum</i>	mistflower	•	•	•				•	•	•	
<i>Eupatorium fistulosum</i>	Joe Pye weed	•	•	•						•	
<i>Eupatorium perfoliatum</i>	common boneset		•	•				•	•	•	•
<i>Helenium autumnale</i>	sneezeweed	•	•	•				•	•	•	
<i>Helianthus angustifolius</i>	narrow-leaf sunflower	•	•	•							
<i>Helianthus decapetalus</i>	ten-petaled sunflower	•	•	•							
<i>Helianthus divaricatus</i>	woodland sunflower	•	•	•				•	•	•	
<i>Helioopsis helianthoides</i>	oxeye sunflower	•	•	•							
<i>Hibiscus moscheutos</i>	Eastern rosemallow	•	•	•							
<i>Iris virginica</i>	Virginia blue flag		•	•				•	•		•
<i>Kosteletskyia virginica</i>	seashore mallow	•	•	•							
<i>Lespedeza capitata</i>	round-head bush clover	•	•	•				•	•	•	
<i>Liatris graminifolia</i>	grass-leaf blazing star	•	•	•				•	•	•	•
<i>Lilium superbum</i>	Turk's cap lily		•	•				•	•	•	•
<i>Lobelia cardinalis</i>	cardinal flower	•	•	•				•	•	•	
<i>Lupinus perennis</i>	lupine, sundial lupine		•	•				•	•	•	
<i>Mimulus ringens</i>	monkeyflower		•	•				•	•	•	•
<i>Monarda fistulosa</i>	wild bergamot	•	•	•				•	•	•	•
<i>Nymphaea odorata</i>	American water lily	•	•	•				•	•	•	•
<i>Oenothera fruticosa</i>	sundrops	•	•	•							
<i>Opuntia humifusa</i>	Eastern prickly-pear	•	•	•					•	•	•
<i>Peltandra virginica</i>	arrow arum	•	•	•				•	•	•	•
<i>Phlox paniculata</i>	summer phlox		•	•						•	
<i>Podophyllum peltatum+</i>	mayapple	•	•	•				•	•	•	
<i>Polygonatum biflorum</i>	Solomon's seal		•	•		•	•				
<i>Pontederia cordata</i>	pickerel weed	•	•	•				•	•	•	•
<i>Pycnanthemum tenuifolium</i>	narrow-leaved mtn. mint	•	•	•				•	•	•	•
<i>Rhexia virginica</i>	Virginia meadow-beauty	•	•	•							
<i>Rudbeckia hirta</i>	black eyed Susan		•	•				•	•	•	•
<i>Rudbeckia laciniata</i>	cut-leaved coneflower	•	•	•				•	•	•	
<i>Sagittaria latifolia</i>	broadleaf arrowhead	•	•	•							•
<i>Salvia lyrata+</i>	lyre-leaf sage		•	•				•	•	•	
<i>Sanguinaria canadensis</i>	bloodroot		•	•		•				•	
<i>Saururus cernuus</i>	lizard's tail		•	•							•
<i>Saxifraga virginensis</i>	early saxifrage		•	•		•	•	•	•	•	•
<i>Solidago caesia</i>	bluestem goldenrod	•	•	•		•				•	
<i>Solidago odora</i>	sweet goldenrod	•	•	•				•	•	•	
<i>Solidago pinetorum+</i>	pinewoods goldenrod	•	•	•				•	•	•	
<i>Solidago rugosa+</i>	rough-stemmed goldenrod	•	•	•				•	•	•	
<i>Solidago sempervirens</i>	seaside goldenrod	•	•	•							
<i>Vernonia noveboracensis</i>	New York ironweed	•	•	•							

- **Do not collect plants from the wild**
- **Buy nursery-propagated plant material**
- **Help prevent establishment of non-native species in natural communities**

FOR MORE INFORMATION ON NATIVE PLANTS:

Virginia Department of Conservation and Recreation
Natural Heritage Program
217 Governor Street
Richmond, VA 23219
(804) 786-7951
www.dcr.state.va.us/dnh/

For a list of nurseries that propagate native plants:

Virginia Native Plant Society
400 Bland Farm Lane, Unit 2
Boyce, VA 22620
(540) 568-8679
vnpsoc@shentel.net
www.vnps.org

For a list of nurseries in a particular region of Virginia contact:

The Virginia Nurseryman's Association*
383 Coal Hollow Road
Christiansburg, VA 24062-0278
(540) 382-0943
vna@swva.net

*List includes association members only.

ABOUT THE PROJECT

This project is the result of a collaboration between the Virginia Department of Conservation and Recreation and the Virginia Native Plant Society and was made possible by a grant from the National Fish and Wildlife Foundation. Funds were also contributed by the Virginia Nurseryman's Association, the Virginia Chapter of the American Society of Landscape Architects and the Lewis Ginter Botanical Garden. In addition to those three organizations, the sponsors extend their considerable appreciation to the other collaborators who provided valuable advice and assistance throughout the life of the project:

The Nature Conservancy-Virginia Chapter
Virginia Polytechnic Institute and State University,
Department of Horticulture
Virginia Department of Agriculture and Consumer Services
Virginia Department of Forestry
Virginia Department of Game and Inland Fisheries
Virginia Department of Transportation

Project participants share a commitment to protect native plant habitats, especially those that support rare, threatened or endangered species. The use of native plant species, especially plants propagated from local populations, in land management, conservation, restoration and horticultural projects will help maintain the ecological integrity of natural areas and preserve native biodiversity.

12/01



Native Plants for Conservation, Restoration and Landscaping

Celebrate and Preserve Our Natural Heritage



OUR NATURAL HERITAGE

Native wildflowers, shrubs and trees are natural heirlooms, handed down to us from a time before recorded history. Using native plants in even the smallest garden can create miniature landscapes possessing the charm and character unique to a region's natural history. With some simple changes, our traditional lawns and gardens can expand to include these local heirlooms, providing us with beauty, solace and conversation, as well as contributing to the conservation of native species.

Indeed, landscaping with native plants, whether in a private garden, on commercial property or in public parks, will help to preserve species. Natural habitats for some of our native plants are rapidly being lost. But there are other reasons for planting native wildflowers, grasses, ferns, shrubs and trees: They can match the finest cultivated plants in beauty and may surpass them in ruggedness and resistance to insects and diseases.

Native: species naturally occurring in the region in which they evolved (indigenous)

Alien: species introduced to a new region by humans, either deliberately or accidentally (exotic, non-native)

WHAT ARE NATIVES?

Native species are those that occur in the region in which they have evolved. Plants and animals evolve in specific habitats over extended periods of time in response to physical and biotic processes that are characteristic of that place: the climate; the soils; the seasonal rainfall, drought, and frost; and interactions with other species occupying those habitats. They thus possess certain traits that make them uniquely adapted to local conditions.

In North America, plants are considered to be native if they occurred here prior to European settlement. This distinction is made because of the many changes in the flora that have occurred since the arrival of European settlers. Since then many more plants have been deliberately and accidentally introduced to North America from distant shores.

But alien species do not come only from distant countries. They may be introduced from a different region of the same country. For instance, a species native to the forests of the west coast of North America would be considered alien if found on the east coast where it was not a constituent of the regional flora.

NATIVES VS. ALIENS

While many alien plants are beneficial and have little or no effect on the natural environment, a few invasive alien species pose serious threats to both natural communities and rare species. Because of a lack of natural controls like insect pests and competitors, some alien plants are able to escape our gardens, establish in a new area, then displace the native plant species growing there. What was a finely woven and diverse natural community may become a monoculture dominated by the invasive alien plant. Along with the displacement of native plant species from these natural habitats comes the loss of many flying, crawling and burrowing creatures that relied on native plants for food, cover and shelter.

Scientific Name	Common Name	Uses				Light			Moisture		
		W	H	C	D	S	P	F	L	M	H
<i>Castanea pumila</i>	Allegheny chinkapin	•	•	•		•	•	•	•		
<i>Ceanothus americanus</i>	New Jersey tea	•	•	•		•	•	•	•		
<i>Cephalanthus occidentalis</i>	buttonbush	•	•	•		•	•	•	•		•
<i>Gaultheria procumbens</i>	wintergreen	•	•	•		•	•	•	•		
<i>Gaylussacia baccata</i>	black huckleberry	•	•	•		•	•	•	•		
<i>Hamamelis virginiana</i>	witch hazel	•	•	•		•	•	•	•		
<i>Ilex decidua</i>	deciduous holly	•	•	•		•	•	•	•		
<i>Ilex verticillata</i>	winterberry	•	•	•		•	•	•	•		
<i>Kalmia latifolia</i>	mountain laurel	•	•	•		•	•	•	•		
<i>Leucothoe racemosa</i>	fetterbush, sweetbells	•	•	•		•	•	•	•		
<i>Lindera benzoin</i>	spicebush	•	•	•		•	•	•	•		
<i>Rhododendron maximum</i>	great rhododendron	•	•	•		•	•	•	•		
<i>Rhododendron periclymenoides</i>	pinxter flower	•	•	•		•	•	•	•		
<i>Rhododendron viscosum</i>	swamp azalea	•	•	•		•	•	•	•		
<i>Rhus copallinum</i>	winged sumac	•	•	•		•	•	•	•		
<i>Rosa carolina</i>	pasture rose	•	•	•		•	•	•	•		
<i>Salix humilis</i>	prairie willow	•	•	•		•	•	•	•		
<i>Salix sericea</i>	silky willow	•	•	•		•	•	•	•		
<i>Sambucus canadensis</i>	common elderberry	•	•	•		•	•	•	•		
<i>Vaccinium corymbosum</i>	highbush blueberry	•	•	•		•	•	•	•		
<i>Viburnum dentatum</i>	arrow-wood viburnum	•	•	•		•	•	•	•		
<i>Viburnum prunifolium</i>	black-haw viburnum	•	•	•		•	•	•	•		
Small trees											
<i>Amelanchier arborea</i>	downy serviceberry	•	•	•		•	•	•	•		
<i>Amelanchier canadensis</i>	Canada serviceberry	•	•	•		•	•	•	•		
<i>Asimina triloba</i>	paw paw	•	•	•		•	•	•	•		
<i>Cercis canadensis</i>	redbud (Eastern)	•	•	•		•	•	•	•		
<i>Chionanthus virginicus</i>	fringetree	•	•	•		•	•	•	•		
<i>Cornus alternifolia</i>	alternate-leaf dogwood	•	•	•		•	•	•	•		
<i>Cornus amomum</i>	silky dogwood	•	•	•		•	•	•	•		
<i>Cornus florida</i>	flowering dogwood	•	•	•		•	•	•	•		
<i>Crataegus crus-galli</i>	cockspur hawthorn	•	•	•		•	•	•	•		
<i>Euonymus atropurpureus</i>	wahoo	•	•	•		•	•	•	•		
<i>Ilex opaca</i>	American holly	•	•	•		•	•	•	•		
<i>Magnolia virginiana</i>	sweetbay magnolia	•	•	•		•	•	•	•		
<i>Morus rubra</i>	red mulberry	•	•	•		•	•	•	•		
<i>Ostrya virginiana</i>	Eastern hop-hornbeam	•	•	•		•	•	•	•		
<i>Rhus glabra</i>	smooth sumac	•	•	•		•	•	•	•		
<i>Rhus hirta</i> (R. typhina)	staghorn sumac	•	•	•		•	•	•	•		
<i>Salix nigra</i>	black willow	•	•	•		•	•	•	•		
Medium to Large Trees											
<i>Acer rubrum</i>	red maple	•	•	•		•	•	•	•		
<i>Betula nigra</i>	river birch	•	•	•		•	•	•	•		
<i>Carya glabra</i>	hickory	•	•	•		•	•	•	•		
<i>Diospyros virginiana</i>	persimmon	•	•	•		•	•	•	•		
<i>Fagus grandifolia</i>	American beech	•	•	•		•	•	•	•		
<i>Fraxinus americana</i>	white ash	•	•	•		•	•	•	•		
<i>Fraxinus pennsylvanica</i>	green ash	•	•	•		•	•	•	•		
<i>Juglans nigra</i>	black walnut	•	•	•		•	•	•	•		
<i>Juniperus virginiana</i>	red cedar (Eastern)	•	•	•		•	•	•	•		
<i>Liquidambar styraciflua</i>	sweetgum	•	•	•		•	•	•	•		
<i>Liriodendron tulipifera</i>	tulip-tree	•	•	•		•	•	•	•		
<i>Nyssa sylvatica</i>	black gum	•	•	•		•	•	•	•		
<i>Oxydendrum arboreum</i>	sourwood	•	•	•		•	•	•	•		
<i>Pinus echinata</i>	shortleaf pine	•	•	•		•	•	•	•		
<i>Pinus virginiana</i>	Virginia pine	•	•	•		•	•	•	•		
<i>Platanus occidentalis</i>	sycamore	•	•	•		•	•	•	•		
<i>Prunus serotina</i>	wild black cherry	•	•	•		•	•	•	•		
<i>Quercus alba</i>	white oak	•	•	•		•	•	•	•		
<i>Quercus bicolor</i>	swamp white oak	•	•	•		•	•	•	•		
<i>Quercus coccinea</i>	scarlet oak	•	•	•		•	•	•	•		
<i>Quercus falcata</i>	Southern red oak	•	•	•		•	•	•	•		
<i>Quercus montana</i>	chestnut oak	•	•	•		•	•	•	•		
<i>Quercus palustris</i>	pin oak	•	•	•		•	•	•	•		
<i>Quercus phellos</i>	willow oak	•	•	•		•	•	•	•		
<i>Quercus rubra</i>	Northern red oak	•	•	•		•	•	•	•		
<i>Quercus stellata</i>	post oak	•	•	•		•	•	•	•		
<i>Quercus velutina</i>	black oak	•	•	•		•	•	•	•		
<i>Sassafras albidum</i>	sassafras	•	•	•		•	•	•	•		
<i>Tilia americana</i>	American basswood	•	•	•		•	•	•	•		
<i>Tsuga canadensis</i>	Eastern hemlock	•	•	•		•	•	•	•		

+ May be aggressive in garden setting.

* Due to the rarity and sensitivity of habitat in Virginia, these species are recommended for horticultural use only.

Planting these species in natural areas could be detrimental to the survival of native populations.

Scientific Name	Common Name	Uses				Light			Moisture		
		W	H	C	D	S	P	F	L	M	H
<i>Pycnanthemum incanum</i>	hoary mountain mint	•	•	•		•		•	•	•	
<i>Pycnanthemum tenuifolium</i>	narrow-leaved mtn. mint	•	•	•		•		•	•	•	
<i>Rhexia virginica</i>	Virginia meadow-beauty	•	•	•				•		•	
<i>Rudbeckia fulgida</i>	early coneflower	•	•	•				•	•	•	
<i>Sagittaria latifolia</i>	broadleaf arrowhead	•	•	•				•		•	
<i>Sanguinaria canadensis</i>	bloodroot	•	•	•		•			•	•	
<i>Saururus cernuus</i>	lizard's tail	•	•	•				•	•	•	
<i>Saxifraga virginensis</i>	early saxifrage	•	•	•		•		•	•	•	
<i>Sedum ternatum</i>	wild stonecrop	•	•	•		•		•	•	•	
<i>Silene virginica</i>	fire pink	•	•	•				•	•	•	
<i>Solidago caesia</i>	bluestem goldenrod	•	•	•		•		•	•	•	
<i>Solidago odora</i>	sweet goldenrod	•	•	•				•	•	•	
<i>Solidago pinetorum</i>	pinewoods goldenrod	•	•	•				•	•	•	
<i>Solidago puberula</i>	downy goldenrod	•	•	•				•	•	•	
<i>Solidago rugosa</i>	rough-stemmed goldenrod	•	•	•		•		•	•	•	
<i>Tiarella cordifolia</i> var. <i>collina</i>	clumping foamflower	•	•	•		•			•	•	
<i>Tradescantia virginiana</i>	Virginia spiderwort	•	•	•		•		•	•	•	
<i>Trillium grandiflorum</i>	white trillium	•	•	•		•			•	•	
<i>Verbena hastata</i>	blue vervain	•	•	•				•	•	•	
<i>Vernonia noveboracensis</i>	New York ironweed	•	•	•				•	•	•	
<i>Viola pedata</i>	bird's foot violet	•	•	•				•	•	•	
<i>Viola pubescens</i>	yellow violet	•	•	•		•		•	•	•	
<i>Yucca filamentosa</i>	common yucca	•	•	•				•	•	•	
Ferns and fern allies											
<i>Adiantum pedatum</i>	maidenhair fern	•	•	•		•			•	•	
<i>Asplenium platyneuron</i>	ebony spleenwort	•	•	•		•			•	•	
<i>Athyrium asplenoides</i>	Southern ladyfern	•	•	•		•			•	•	
<i>Dryopteris intermedia</i>	evergreen wood-fern	•	•	•		•			•	•	
<i>Dryopteris marginalis</i>	marginal shield-fern	•	•	•		•			•	•	
<i>Onoclea sensibilis</i>	sensitive fern	•	•	•		•			•	•	
<i>Osmunda cinnamomea</i>	cinnamon fern	•	•	•		•			•	•	
<i>Osmunda regalis</i>	royal fern	•	•	•		•			•	•	
<i>Polystichum acrostichoides</i>	Christmas fern	•	•	•		•			•	•	
Grasses, sedges, & rushes											
<i>Agrostis perennans</i>	autumn bentgrass	•	•	•		•		•	•	•	
<i>Andropogon gerardii</i>	big bluestem	•	•	•		•		•	•	•	
<i>Andropogon glomeratus</i>	bushy bluestem	•	•	•		•		•	•	•	
<i>Andropogon virginicus</i>	broomsedge	•	•	•		•		•	•	•	
<i>Carex crinita</i> var. <i>crinita</i>	long hair sedge	•	•	•		•		•	•	•	
<i>Carex lurida</i>	sallow sedge	•	•	•		•		•	•	•	
<i>Carex pensylvanica</i>	Pennsylvania sedge	•	•	•		•		•	•	•	
<i>Carex stricta</i>	tussock sedge	•	•	•		•		•	•	•	
<i>Chasmanthium latifolium</i>	river oats	•	•	•		•		•	•	•	
<i>Danthonia sericea</i>	silky oatgrass	•	•	•		•		•	•	•	
<i>Danthonia spicata</i>	poverty oatgrass	•	•	•		•		•	•	•	
<i>Dichanthelium clandestinum</i>	deer-tongue	•	•	•		•		•	•	•	
<i>Dichanthelium commutatum</i>	variable panicgrass	•	•	•		•		•	•	•	
<i>Dulichium arundinaceum</i>	dwarf bamboo	•	•	•		•		•	•	•	
<i>Elymus hystrix</i> (<i>Hystrix patula</i>)	bottlebrush grass	•	•	•		•		•	•	•	
<i>Elymus virginicus</i>	Virginia wild rye	•	•	•		•		•	•	•	
<i>Juncus canadensis</i>	Canada rush	•	•	•		•		•	•	•	
<i>Juncus effusus</i>	soft rush	•	•	•		•		•	•	•	
<i>Leersia oryzoides</i>	rice cutgrass	•	•	•		•		•	•	•	
<i>Panicum virgatum</i>	switch grass	•	•	•		•		•	•	•	
<i>Saccharum giganteum</i>	giant plume grass	•	•	•		•		•	•	•	
<i>Schizachyrium scoparium</i>	little bluestem	•	•	•		•		•	•	•	
<i>Scirpus cyperinus</i>	woolgrass bulrush	•	•	•		•		•	•	•	
<i>Sorghastrum nutans</i>	Indian grass	•	•	•		•		•	•	•	
<i>Sparganium americanum</i>	American bur-reed	•	•	•		•		•	•	•	
<i>Tridens flavus</i>	redtop	•	•	•		•		•	•	•	
<i>Tripsacum dactyloides</i>	gama grass	•	•	•		•		•	•	•	
<i>Typha latifolia</i>	broad-leaved cattail	•	•	•		•		•	•	•	
Vines											
<i>Celastrus scandens</i>	climbing bittersweet	•	•	•		•		•	•	•	
<i>Lonicera sempervirens</i>	trumpet honeysuckle	•	•	•		•		•	•	•	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	•	•	•		•		•	•	•	
Shrubs											
<i>Alnus serrulata</i>	common alder	•	•	•		•		•	•	•	
<i>Aronia arbutifolia</i>	red chokeberry	•	•	•		•		•	•	•	

In contrast to invasive alien species, other non-native plants are unable to thrive without extra effort by gardeners. For instance, they may originate in regions with abundant rainfall and soils rich in nutrients. If then introduced into a drier region with less fertile soils, they may require additional watering and fertilizer. The natural defenses that plants evolve in their original habitats may not protect them in a new environment, requiring the application of pesticides to aid their growth. The benefit of growing plants within the region in which they evolved is that they are more likely to thrive under the local conditions requiring less attention, labor and expensive additives.

BASICS ABOUT LANDSCAPING WITH NATIVES

When landscaping with natives, match the plants to the correct region, moisture and light conditions. Start with this brochure and study the names of the plants native to your region, and the sunlight and moisture regimes they prefer. Refer to field guides and books of natural history to learn which plants will fit within your planting scheme and provide specific benefits to the wildlife in your area. Plan to texture your landscape with a combination of flowers, shrubs and trees that would occur together naturally. Visit a natural area in your region and observe common plant associations, spatial groupings and habitat conditions. Whether you start small or go all out, always purchase your native plants and seeds from reputable sources that propagate their own plants, preferably from local sources.

NATIVES FOR WILDLIFE

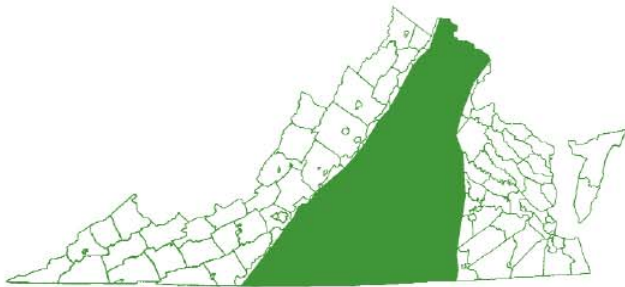
Plants and animals evolve together to create unique natural communities, weaving a complex web of interrelationships. Flowers often bloom and fruits ripen in synchrony with the needs of the animals that pollinate the flowers and disperse the seeds. A butterfly feeds on the nectar of a certain flower and in turn pollinates the plant. To reap the greatest benefit, the flower must bloom and the butterfly emerge simultaneously. Later the flower goes to seed, coincidentally when songbirds are fattening for the autumn migration. Gorging themselves, the birds scatter much of what they fail to eat, thus helping disperse the plant's seed.

Alien plant species rarely keep time according to the internal clocks of our native wildlife. Their flowers may bloom too early or late, their fruits grow too large for resident birds to carry, their petals too long for a local nectar feeder to probe, and their smell and texture unrecognizable to a butterfly in search of a host plant on which to lay her eggs.

The greater the variety of plants, the more likely uncommon species will be attracted to your yard. Certain butterflies will hatch and feed only on one type of host plant. When you plant a variety of host and nectar plants, you may see the entire life cycle of several species of butterflies. Keep in mind butterflies and hummingbirds prefer different flowers. Songbirds, too, will visit wildflowers during the spring and summer nesting season to feed on insects and spiders and carry them back to their young. Later they will visit for the dried seeds to fuel them for long journeys to

southern wintering grounds. Trees for nesting, shrubs for shelter and water for bathing will further enhance a backyard wildlife preserve.

PIEDMONT



Virginia is divided into several physiographic provinces based on geologic history. Each province has characteristic topography, soil pH, soil depth, elevation and hydrology. These characteristics combine to influence the species of plants and animals found there. Virginia is unique, encompassing parts of five of these provinces, and thus has a greater variety of natural landscapes than any other eastern state.

Virginia's Piedmont province is a gently rolling upland bounded on the east by the fall line and the on west by the Blue Ridge Mountains. The western boundary of the Piedmont is characterized by low peaks and ridges, comprising the foothills of the Blue Ridge Mountains. To the east, the Piedmont continues to slope more gently toward the fall line. The fall line marks the zone of transition from the hard, resistant bedrock underlying the Piedmont to the softer sediments of the Coastal Plain and is sharply delineated by falls and rapids in rivers crossing the boundary. Streams are able to cut more easily through the sands, gravels and clays of the Coastal Plain, and rivers widen as the topography flattens. From foothills to river rapids, varying Piedmont site conditions support a mosaic of plant communities.

Recommended Uses

W = wildlife
H = horticulture
C = conservation
D = domestic livestock forage

Minimum Light Requirements

S = shade
P = partial sun
F = full sun

Native Regions

C = Coastal Plain
P = Piedmont
M = Mountains and Valley

Moisture Requirements

L = low
M = medium
H = high

Scientific Name	Common Name	Uses				Light			Moisture		
		W	H	C	D	S	P	F	L	M	H
Forbs											
<i>Acorus americanus</i>	sweet flag										
<i>Amsonia tabernaemontana</i>	blue star										
<i>Anemone quinquefolia</i>	wood anemone										
<i>Antennaria neglecta</i>	field pussytoes										
<i>Aquilegia canadensis</i>	wild columbine										
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit										
<i>Arunco dioticus</i>	goatsbeard										
<i>Asclepias incarnata</i>	swamp milkweed										
<i>Asclepias tuberosa</i>	butterfly weed										
<i>Aster concolor</i>	Eastern silvery aster										
<i>Aster divaricatus</i>	white wood aster										
<i>Aster novae-angliae</i>	New England aster										
<i>Aster pilosus</i>	white heath aster										
<i>Aster umbellatus</i>	flat-top white aster										
<i>Baptisia tinctoria</i>	yellow wild-indigo										
<i>Chamaecrista fasciculata+</i>	partridge pea										
<i>Chelone glabra</i>	white turtlehead										
<i>Chrysogonum virginianum</i>	green and gold										
<i>Chrysopsis mariana</i>	Maryland golden aster										
<i>Cimicifuga racemosa</i>	black snakeroot										
<i>Coreopsis tripteris</i>	tall coreopsis										
<i>Coreopsis verticillata</i>	threadleaf coreopsis										
<i>Delphinium tricolor</i>	dwarf larkspur										
<i>Desmodium paniculatum</i>	narrow-leaf tick trefoil										
<i>Dicentra cucullaria</i>	Dutchman's breeches										
<i>Dicentra eximia</i>	wild bleeding heart										
<i>Eupatorium coelestinum</i>	mistflower										
<i>Eupatorium fistulosum</i>	Joe Pye weed										
<i>Eupatorium perfoliatum</i>	common boneset										
<i>Geranium maculatum</i>	wild geranium										
<i>Helenium autumnale</i>	sneezeweed										
<i>Helianthus angustifolius</i>	narrow-leaf sunflower										
<i>Helianthus decapetalus</i>	ten-petaled sunflower										
<i>Helianthus divaricatus</i>	woodland sunflower										
<i>Heliosopsis helianthoides</i>	oxeye sunflower										
<i>Hepatica acutiloba</i>	sharp-lobed hepatica										
<i>Hibiscus moscheutos</i>	Eastern rosemallow										
<i>Iris cristata</i>	dwarf crested iris										
<i>Iris virginica</i>	Virginia blue flag										
<i>Lespedeza capitata</i>	round-head bush clover										
<i>Liatris squarrosa</i>	plains blazing star										
<i>Lilium canadense</i>	Canada lily										
<i>Lilium superbum</i>	Turk's cap lily										
<i>Lobelia cardinalis</i>	cardinal flower										
<i>Lobelia siphilitica</i>	great blue lobelia										
<i>Malanthemum racemosum</i>	false Solomon's seal										
<i>Mertensia virginica</i>	Virginia bluebells										
<i>Mimulus ringens</i>	monkeyflower										
<i>Monarda fistulosa</i>	wild bergamot										
<i>Nymphaea odorata</i>	American water lily										
<i>Oenothera fruticosa</i>	sundrops										
<i>Opuntia humifusa</i>	Eastern prickly-pear										
<i>Peltandra virginica</i>	arrow arum										
<i>Phlox carolina</i>	thick-leaved phlox										
<i>Phlox divaricata</i>	woodland phlox										
<i>Phlox subulata</i>	moss phlox										
<i>Physostegia virginiana</i>	obedient plant										
<i>Podophyllum peltatum+</i>	mayapple										
<i>Polygonatum biflorum</i>	Solomon's seal										
<i>Potterderia cordata</i>	pickerel weed										
<i>Porteranthus trifolius</i>	Bowman's root										

Invasive Alien Plant Species of Virginia



Department of Conservation and Recreation
Division of Natural Heritage
217 Governor Street
Richmond, Virginia 23219
(804) 786-7951
http://www.dcr.virginia.gov/natural_heritage/

Virginia Native Plant Society
Blandy Experimental Farm
400 Blandy Farm Lane, Unit 2
Boyce, Virginia 22620
(540) 837-1600
<http://www.vnps.org>

September 2003					Key					
					M = Mountains P = Piedmont C = Coastal		F = Full sun P = Part Sun S = Shade		H = Hydric M = Mesic X = Xeric	
SCIENTIFIC NAME	COMMON NAME	REGION			LIGHT			MOISTURE		
		M	P	C	F	P	S	H	M	X
Highly Invasive Species										
<i>Ailanthus altissima</i>	Tree-of-heaven	•	•	•	•	•			•	
<i>Alliaria petiolata</i>	Garlic mustard	•	•		•	•	•		•	
<i>Alternanthera philoxeroides</i>	Alligator weed			•	•	•		•		
<i>Ampelopsis brevipedunculata</i>	Porcelain-berry		•		•	•	•		•	
<i>Carex kobomugi</i>	Asiatic sand sedge			•	•	•				•
<i>Celastrus orbiculata</i>	Oriental bittersweet	•	•	•		•	•		•	
<i>Centaurea dubia</i>	Short-fringed knapweed	•			•	•			•	•
<i>Centaurea biebersteinii</i>	Spotted knapweed	•	•	•	•	•				•
<i>Cirsium arvense</i>	Canada thistle	•	•	•	•				•	
<i>Dioscorea oppositifolia</i>	Chinese yam	•	•	•		•	•		•	
<i>Elaeagnus umbellata</i>	Autumn olive	•	•	•	•	•			•	
<i>Euonymus alata</i>	Winged burning bush		•			•	•		•	
<i>Hydrilla verticillata</i>	Hydrilla			•	•	•		•		
<i>Imperata cylindrica</i>	Cogon grass			•		•	•		•	
<i>Lespedeza cuneata</i>	Chinese lespedeza	•	•		•				•	
<i>Ligustrum sinense</i>	Chinese privet	•	•	•		•	•		•	
<i>Lonicera japonica</i>	Japanese honeysuckle	•	•	•	•	•	•		•	
<i>Lonicera morrowii</i>	Morrow's honeysuckle	•	•		•	•	•		•	
<i>Lonicera standishii</i>	Standish's honeysuckle	•	•			•	•		•	
<i>Lythrum salicaria</i>	Purple loosestrife	•	•	•	•			•	•	
<i>Microstegium vimineum</i>	Japanese stilt grass	•	•	•	•	•	•	•	•	

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		M	P	C	F	P	S	H	M	X
Highly Invasive Species - continued										
Murdannia keisak	Aneilema		•	•	•	•		•		
Myriophyllum aquaticum	Parrot feather	•	•	•	•			•		
Myriophyllum spicatum	European water-milfoil	•	•	•	•			•		
Phragmites australis	Common reed		•	•	•	•		•	•	
Polygonum cuspidatum	Japanese knotweed	•	•	•	•	•			•	
Polygonum perfoliatum	Mile-a-minute		•		•	•	•		•	
Pueraria montana	Kudzu vine	•	•	•	•	•	•		•	
Ranunculus ficaria	Lesser celandine			•		•	•		•	
Rosa multiflora	Multiflora rose	•	•	•	•	•			•	
Rubus phoenicolasius	Wineberry	•	•	•		•	•		•	
Sorghum halepense	Johnson-grass	•	•	•	•	•			•	
Moderately Invasive Species										
Acer platanoides	Norway maple	•	•	•	•	•			•	
Agropyron repens	Quack grass	•	•	•	•	•			•	
Agrostis tenuis	Rhode Island bent-grass	•	•		•	•			•	
Akebia quinata	Five-leaf akebia		•	•	•	•	•		•	
Albizia julibrissin	Mimosa	•	•	•	•	•			•	
Allium vineale	Wild onion	•	•	•	•	•			•	
Artemisia vulgaris	Mugwort	•	•	•	•	•			•	•
Arthraxon hispidus	Jointed grass	•	•	•	•	•	•	•	•	
Arundo donax	Giant reed		•	•	•	•		•	•	
Berberis thunbergii	Japanese barberry	•	•	•	•	•	•		•	
Carduus nutans	Musk thistle	•	•	•	•				•	
Cassia obtusifolia	Sickle pod		•	•	•	•			•	•
Centaurea jacea	Brown knapweed	•	•		•	•			•	•
Cirsium vulgare	Bull-thistle	•	•	•	•				•	
Convolvulus arvensis	Field-bindweed	•	•	•	•	•			•	
Dipsacus laciniatus	Cut-leaf teasel	•			•				•	
Dipsacus sylvestris	Common teasel	•	•	•	•			•	•	
Egeria densa	Brazilian water-weed	•	•	•	•	•		•		
Euonymus fortunei	Wintercreeper			•		•	•	•	•	

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Moderately Invasive Species - continued										
<i>Festuca elatior</i> (F. pratensis)	Tall fescue	•	•	•	•	•			•	
<i>Foeniculum vulgare</i>	Fennel		•	•	•			•	•	•
<i>Glechoma hederacea</i>	Gill-over-the-ground	•	•	•		•	•		•	
<i>Hedera helix</i>	English ivy		•	•	•	•	•		•	
<i>Holcus lanatus</i>	Velvet-grass	•	•	•	•	•		•	•	
<i>Humulus japonicus</i>	Japanese hops	•	•	•	•	•	•	•	•	
<i>Ipomoea hederacea</i>	Ivy-leaved morning-glory	•	•	•	•	•		•	•	
<i>Ipomoea purpurea</i>	Common morning-glory	•	•	•	•				•	
<i>Iris pseudacorus</i>	Yellow flag	•	•	•	•	•		•		
<i>Ligustrum obtusifolium</i>	Blunt-leaved privet		•	•			•		•	
<i>Lonicera maackii</i>	Amur honeysuckle	•	•			•			•	
<i>Lonicera tatarica</i>	Tartarian honeysuckle	•	•		•	•			•	
<i>Lysimachia nummularia</i>	Moneywort	•	•	•	•	•	•	•	•	
<i>Melia azedarach</i>	China-berry		•	•	•	•			•	
<i>Paulownia tomentosa</i>	Princess tree	•	•	•	•	•			•	
<i>Phleum pratense</i>	Timothy	•	•	•	•	•			•	
<i>Phyllostachys aurea</i>	Golden bamboo		•	•	•	•			•	
<i>Poa compressa</i>	Canada bluegrass	•	•	•	•	•	•		•	•
<i>Poa trivialis</i>	Rough bluegrass	•	•	•	•	•	•	•	•	
<i>Polygonum cespitosum</i>	Bristled knotweed	•	•	•	•	•	•	•	•	
<i>Populus alba</i>	White poplar	•	•	•	•	•			•	
<i>Rumex acetosella</i>	Red sorrel	•	•	•	•	•			•	
<i>Rumex crispus</i>	Curled dock	•	•		•				•	•
<i>Setaria faberi</i>	Giant foxtail		•	•	•	•			•	
<i>Spiraea japonica</i>	Japanese spiraea	•	•			•	•	•	•	
<i>Stellaria media</i>	Common chickweed	•	•	•	•	•	•		•	
<i>Veronica hederifolia</i>	Ivy-leaved speedwell	•	•	•	•	•	•		•	
<i>Wisteria sinensis</i>	Chinese wisteria		•	•		•	•		•	
<i>Xanthium strumarium</i>	Common cocklebur	•	•	•	•	•			•	•

September 2003

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SCIENTIFIC NAME	COMMON NAME	REGION			LIGHT			MOISTURE		
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Occasionally Invasive Species

<i>Agrostis gigantea</i>	Redtop	•	•	•	•	•			•	
<i>Ajuga reptans</i>	Bugleweed	•	•	•	•	•			•	•
<i>Arrhenatherum elatius</i>	Oatgrass	•	•	•	•	•			•	
<i>Commelina communis</i>	Common dayflower	•	•	•	•	•			•	
<i>Conium maculatum</i>	Poison hemlock	•	•	•	•	•			•	
<i>Coronilla varia</i>	Crown-vetch	•	•	•	•				•	•
<i>Dactylis glomerata</i>	Orchard grass	•	•	•	•	•			•	
<i>Elaeagnus angustifolia</i>	Russian olive	•	•	•	•	•			•	
<i>Elaeagnus pungens</i>	Thorny elaeagnus		•	•		•			•	
<i>Eragrostis curvula</i>	Weeping lovegrass	•	•	•	•				•	•
<i>Euphorbia esula</i>	Leafy spurge	•	•			•	•		•	
<i>Ipomoea coccinea</i>	Red morning-glory	•	•	•	•				•	
<i>Lapsana communis</i>	Nipplewort	•			•	•			•	
<i>Lespedeza bicolor</i>	Shrubby bushclover	•	•	•	•	•			•	
<i>Lonicera fragrantissima</i>	Sweet breath of spring		•		•	•			•	
<i>Lonicera x bella</i>	Bell's honeysuckle	•	•	•	•	•			•	
<i>Lotus corniculatus</i>	Birdsfoot trefoil	•	•	•	•	•			•	•
<i>Melilotus alba</i>	White sweet clover	•	•	•	•	•			•	
<i>Melilotus officinalis</i>	Yellow sweet clover	•	•	•	•	•			•	
<i>Miscanthus sinensis</i>	Silver grass	•	•	•	•	•			•	
<i>Morus alba</i>	White mulberry	•	•	•	•	•			•	
<i>Pastinaca sativa</i>	Wild parsnip	•	•	•	•	•			•	
<i>Perilla frutescens</i>	Beefsteak plant	•	•	•		•	•		•	
<i>Trapa natans</i>	Water chestnut			•	•			•	•	
<i>Ulmus pumila</i>	Siberian elm		•		•	•			•	
<i>Viburnum dilatatum</i>	Linden viburnum		•		•	•			•	
<i>Vinca minor</i> & <i>V. major</i>	Periwinkle	•	•	•	•	•	•		•	
<i>Wisteria floribunda</i>	Japanese wisteria			•		•	•		•	

About the List

This advisory list is published by Virginia Department of Conservation and Recreation (VDCR) to inform land managers of potential risks associated with certain plant species known to exhibit invasive behavior in some situations. The list is not regulatory in nature, and thus does not prohibit the use of the plant species listed.

VDCR and Virginia Native Plant Society use detailed criteria to assess the invasiveness of a plant. Factors used to rank each species include: cumulative impacts on natural areas; impacts on other species; potential to disperse and invade natural landscapes; distribution and abundance; and difficulty to manage.

Invasiveness Ranking

Highly invasive species exhibit the most invasive tendencies in natural areas and native plant habitats. They may disrupt ecosystem processes and cause major alterations in plant community composition and structure. They establish readily in natural systems and spread rapidly.

Moderately invasive species may have minor influence on ecosystem processes, alter plant community composition, and affect community structure in at least one layer. They may become dominant in the understory layer without threatening all species found in the community. These species usually require a minor disturbance to become established.

Occasionally invasive species generally do not affect ecosystem processes but may alter plant community composition by outcompeting one or more native plant species. They often establish in severely disturbed areas. The disturbance may be natural or human origin, such as icestorm damage, windthrow, or road construction. These species spread slowly or not at all from disturbed sites.

Regions

For the purpose of this list, the state has been divided into three regions: Coastal Plain, Piedmont, and Mountains. The Coastal Plain and Piedmont regions follow conventional physiographic province boundaries. The Mountain region combines the Blue Ridge, Ridge and Valley, and Appalachian Plateau physiographic provinces.

Habitat Requirements

The categories for light and soil requirements are very broad and are only meant to give general indication of habitat adaptations for these plants.

L. Preston Bryant, Jr.
Secretary of Natural Resources



Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

900 E. Main Street, 8th Floor, Pocahontas Building
Richmond, Virginia 23219-3558
Phone: (804) 225-3440 TOLL-FREE TDD: 1-800-243-7229
FAX: 804-225-3447 WEBSITE: www.dcr.virginia.gov

September 21, 2009

Mr. Kevin Byrnes, AICP
Director of Regional Planning and Regional Demographer
George Washington Regional Commission (GWRC)
406 Princess Anne Street
Fredericksburg, Virginia 22401

Dear Mr. ^{Kevin}Byrnes:

I am writing in regard to the project currently underway by the George Washington Regional Commission to review local land development ordinances for conformance with the Phase III requirements of the Chesapeake Bay Preservation Area Designation and Management Regulations.

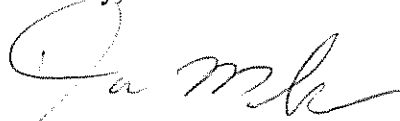
As you are aware, over the next 18 months, staff from the Division of Chesapeake Bay Local Assistance (CBLA) will be working with local staff to review ordinances of all 84 Bay Act localities. Ultimately, many of these localities will need to, or choose to, incorporate additional provisions in their ordinances or processes to include specific development standards that address three performance criteria in the Regulations. The project being undertaken by the Commission will help facilitate this regulatory requirement in two ways. First, this work is providing an opportunity for CBLA staff to understand the extent of effort necessary to undertake such a review and the issues involved with such a review. Second, and more importantly, the product of this effort (i.e. the regional comparative checklist matrix) will be directly transferable to the other 77 other Bay Act localities and the 7 other Tidewater Planning District Commissions.

Local governments will be looking for sample ordinance provisions and model language. The ordinance clearinghouse on the GWRC website is a user-friendly product, and currently the only consolidated source of such information. Ultimately, CBLA staff would like to develop something similar, expanded with information collected during our ordinance reviews. The model you developed will be a critical head start in this effort.

Mr. Kevin Byrnes, AICP
September 21, 2009
Page 2

We appreciate your efforts, have already seen positive results, and look forward to the project's completion.

Sincerely,

A handwritten signature in black ink, appearing to read "D M Sacks", written in a cursive style.

David M. Sacks
Assistant Director

c: Adrienne Kotula, DCR Principal Environmental Planner

The Chesapeake Bay Preservation Act: Phase III and Compliance Evaluations

September 10, 2009
George Washington Regional Commission

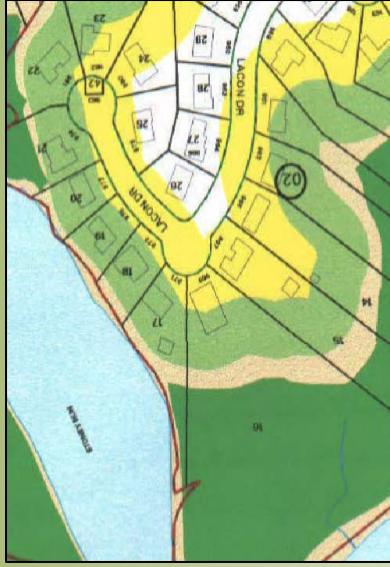


Presentation Overview

- Phase III Program
- Advisory Reviews
- Local Program Compliance Evaluations
- Expected Schedule



Elements of a Local Bay Act Program



- **Phase I:** Mapping of Chesapeake Bay Preservation Areas and adoption of management program in local ordinances
- **Phase II:** Adoption of Comprehensive Plan components
- **Phase III:** Review and revision of local codes for inclusion of specific standards that implement water quality performance criteria



Requirements of Phase III

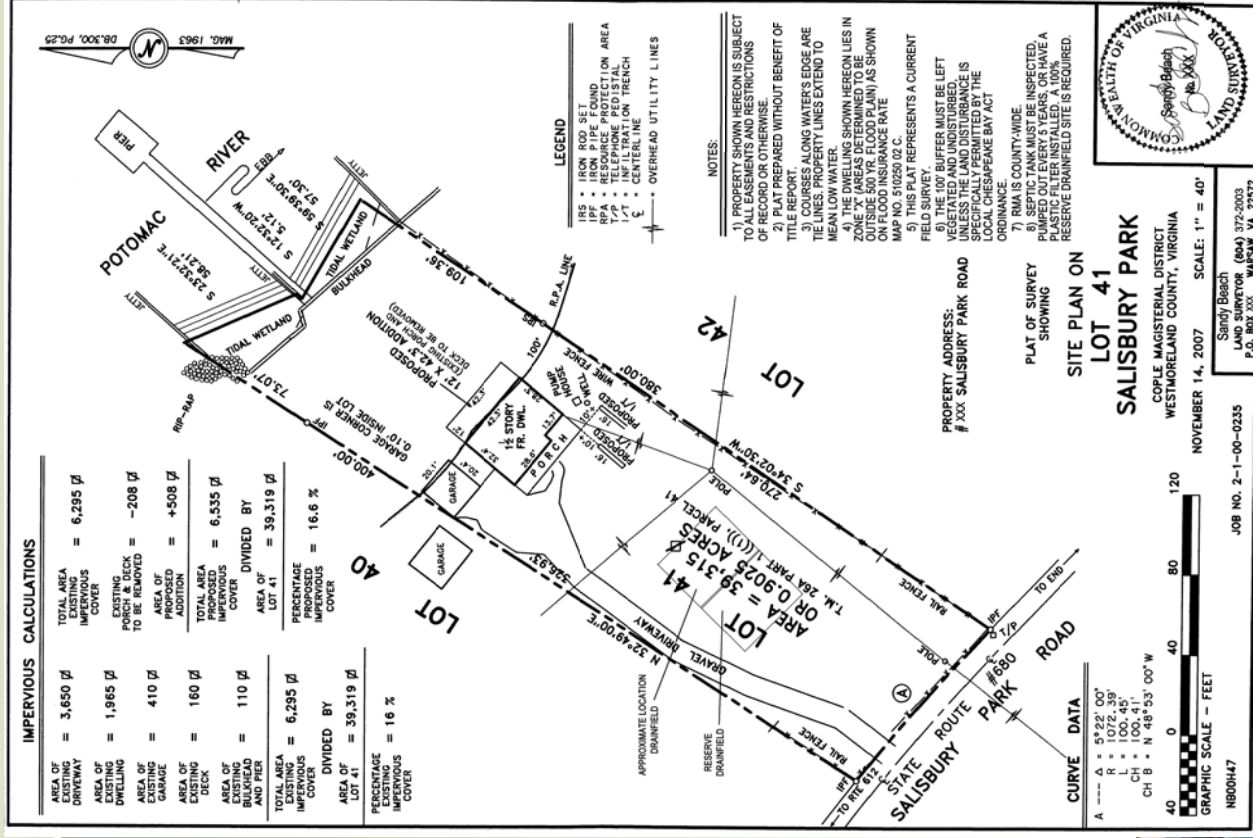
- Six provisions applicable to approved plats and plans
(9 VAC 10-20-191 A 4 & 5)
- Specific development standards to address the three general performance criteria must exist in ordinances
(9 VAC 10-20-191 A 2)
- Identify and resolve obstacles and conflicts to achieving the “water quality goals of the Act” within local programs and ordinances
(9 VAC 10-20-191 B 1 & 2)

Required Provisions for Plans and Plats

Local ordinances must require approved plats and plans to have the following:

1. a depiction of RPA and RMA boundaries
2. a notation for the requirement to retain an undisturbed and vegetated 100-foot wide buffer
3. a notation regarding the requirement for pump-out for on-site sewage treatment systems
4. a notation regarding the requirement for 100% reserve drainfield
5. a notation that development in the RPA is limited to water dependent facilities or redevelopment
6. a delineation of the buildable areas on each lot*

* Item #6 is not required to be implemented through ordinances



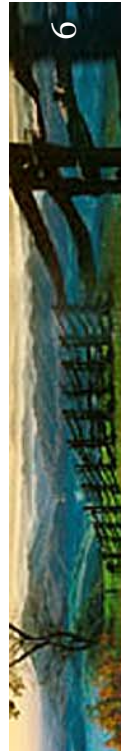
Specific Development Standards

Local land development ordinances must contain “specific development standards” that implement the three general performance criteria. (9)
VAC 10-20-120 1, 2 & 5)



- Minimize Land Disturbance
- Preserve Indigenous Vegetation
- Minimize Impervious Cover

The *Checklist for Advisory Review of Local Ordinances* provides suggested ordinance provisions with specific standards



Identify and Resolve Obstacles and Conflicts

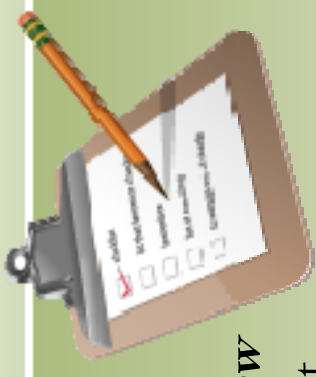
Local governments must review and revise land development ordinances and requirements to:

- Eliminate obstacles to achieving water quality goals of the Chesapeake Bay Preservation Act.
- Ensure all components of the local Bay Act program are consistent in protecting state waters.

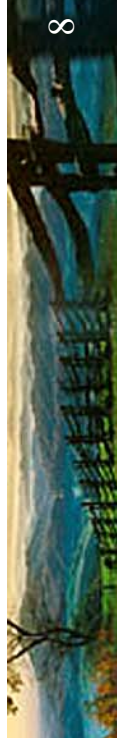
(9 VAC 10-20-191 B 1 & 2)



DCR Phase III Review Approach



- Advisory Reviews of Local Ordinances. DCR staff will review local ordinances using the ***Checklist for Advisory Review of Local Ordinances*** and the ***Plan and Plat Consistency Review Checklist***. Results of the review will be summarized in a report to the locality.
- Localities will be encouraged to adopt ordinance amendments as needed to incorporate plan and plat requirements and to add ordinance provisions to assist in implementing the three performance criteria.
- CBLA Staff will provide assistance with model ordinance provisions as needed.
- CBLA compliance evaluations of local Bay Act programs will include an enhanced review of performance criteria implementation to gauge adequacy of ordinance standards.



Local Program Compliance Evaluations

- An evaluation of the **implementation** of the locality's Bay Act program
- Occur approximately every five years
- Formal Review by the Chesapeake Bay Local Assistance Board
- Review is based on requirements in the Regulations
- Beginning in 2010, compliance evaluations will include new or enhanced components

9 VAC 10-20-250 2 b:

“Upon a satisfactory finding resulting from the compliance review, the Board will certify that the local program is being implemented and enforced ... consistent with the Act and [Regulations] ... and is therefore in compliance.”

As of September 2009, 83 of 84 localities have completed a review; 72 localities will have been found fully compliant.



Local Program Compliance Evaluation

Review Elements

- Adequate Implementation of the 11 land use and development performance criteria:
 1. Minimize land disturbance
 2. Preserve indigenous vegetation
 3. BMP maintenance
 4. Plan of Development review process
 5. Minimize impervious cover
 6. E & S for development > 2,500 sq. ft.
 7. Septic pump-out
 8. Stormwater management
 9. Agricultural conservation assessments
 10. Silviculture exemption
 11. Wetlands permits



Local Program Compliance Evaluation

Review Elements

- Use and application of local CBPA map
- Appropriate application of allowed exceptions
- Record of enforcement of violations
- Appropriate documentation for all types of development approved in RPA, RMA, and IDA (WQIA, stormwater calculations, etc.)

All review elements are based on specific requirements in the Regulations

Local Program Compliance Evaluation

Review Elements

What's New:

Review for the implementation of Phase III program requirements, to include:

- A review of ordinances for plan and plat requirements
- A review of approved development plans and files with a stronger focus on the implementation of the three general performance criteria (minimize impervious cover, preserve indigenous vegetation, minimize land disturbance)

Where the combination of ordinances and approved plans do not address the Phase III requirements, conditions may be imposed by the Chesapeake Bay Local Assistance Board

Local Program Compliance Evaluations

Review Elements

New or Enhanced Review Items Under Consideration

- Ensure required Comprehensive Plan elements still exist; verify information is based on most current data.
- Requirement for Agricultural Assessments (conservation assessments and conservation plans).
- Agricultural Buffer Encroachments; verify that approved encroachments have required BMPs in place, and locality has a process for and is pursuing enforcement when needed.
- Comprehensive Plan Implementation; verify implementation measures in comprehensive plan have been completed. Verify development approvals are consistent with Comprehensive Plan (Bay Act elements) policies.

Phase III Consistency

A Board finding of Phase III Consistency will be determined by:

1. Existence of required plan and plat provisions in the local ordinances
2. Demonstrated ability to implement the three general performance criteria as determined by a compliance evaluation plan review
3. Implementation of the three general performance criteria must be based at least in-part on specific ordinance provisions or written administrative processes

Review and Evaluation Schedule

George Washington Localities

Locality	Phase III Advisory Review	Compliance Evaluation
Stafford	September 15, 2009	September 2011
Bowling Green	November 1, 2009	March 2013
Caroline	December 15, 2009	June 2013
Spotsylvania	February 1, 2010	June 2013
King George	March 15, 2010	June 2014
Fredericksburg	May 1, 2010	September 2014
Port Royal	June 15, 2010	December 2014

Compliance Evaluations are conducted for a locality every five years.

Phase III Advisory Ordinance Reviews to be completed by March 2011

Compliance Evaluation And Phase III Expected Schedule

June 15, 2009:	CBLAB authorized proceeding with Phase III Advisory Code and Ordinance Reviews
July 24, 2009:	Notification to localities of Phase III program requirements and Advisory reviews
September 2009:	Begin advisory review of ordinances for all 84 localities
Sept - Oct 2009:	Discussions with Localities
Nov/Dec 2009:	Detailed discussions with CBLAB regarding revisions to Compliance Evaluation program.
March 2010:	Approval of Compliance Evaluation program by CBLAB
March 2011	Complete Advisory Reviews
Ongoing:	Local government outreach and technical assistance

Questions?



Contact: Division of Chesapeake Bay Local Assistance

Phone: 1-800-243-7229 or (804) 225-3440 www.dcr.virginia.gov

Advisory Review Checklists

General Performance Criteria

Part 1- Minimize Land Disturbance 18 options

Subcategories:

Open Space Requirements
Clearing and Grading Requirements
Utility and Easement Requirements
Low Impact Development Concepts
Better Site Design Concepts



Sample Question:

Is there an ordinance provision, or other adopted document, that requires that all clearing and grading plans or equivalent (including individual lots) specify limits of clearing and restricts clearing to the minimum necessary for the construction of the project?

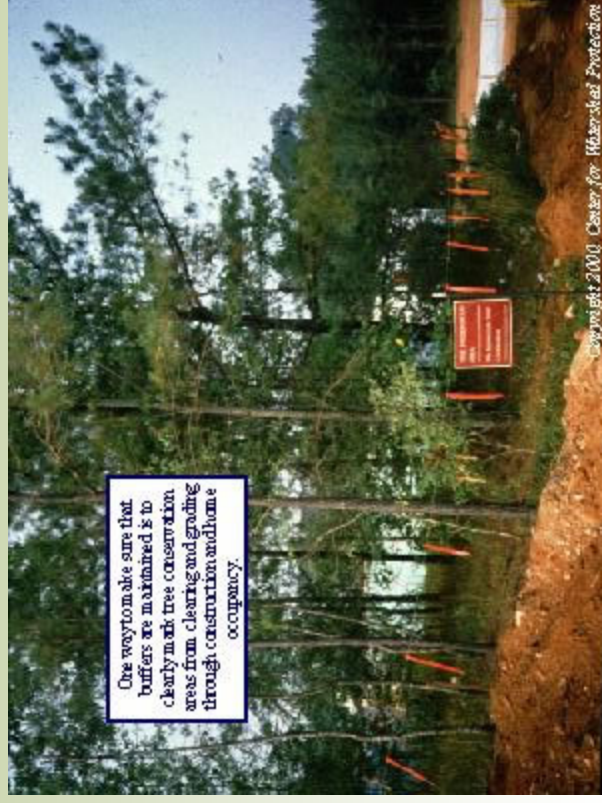
Advisory Review Checklists

General Performance Criteria

Part 2 – Preserve existing vegetation 18 options

Subcategories:

Sensitive Land Protection/Preservation
Vegetation and Tree Protection Requirements
Better Site Design Concepts



Sample Question:

Is there an ordinance provision, or other adopted document, that includes clear language to protect woody vegetation outside of the construction footprint on individual lots or development sites?

Advisory Review Checklists

General Performance Criteria

Part 3 – Minimize Impervious Cover 25 options

Subcategories:

Parking Requirements
Low Impact Development Concepts
Redevelopment and Infill Development Concepts
Road Design Requirements
Pedestrian Pathways and Driveways

Sample Question:

Are there ordinance provisions, or other adopted documents, that allow for shared and off-site parking in certain zoning districts, such as commercial and office districts?



FY 2008 CZM Technical Assistance Grant
Regional Coordination of Phase III Local Development Codes Review

Meeting Minutes: May 20, 2009, 10:00 – 11:30 am

1. Welcome & Introductions.....Attendees

Check-In	Name	Representing	E-Mail	Phone
X	Sacks, Dave	DCR: CBLAD	David.Sacks@dcv.virginia.gov	
	Adrienne Kotula	DCR: CBLAD	Adrienne.Kotula@dcv.virginia.gov	
X	Amber Forestier	Stafford Co	AForestier@co.stafford.va.us	(540) 658-8668
	Michael S Lott	Stafford Co	MLott@co.stafford.va.us	
	Richard Street	Spotsylvania Co	rstreet@spotsylvania.va.us	
	Troy Tignor	Spotsylvania Co	ttignor@spotsylvania.va.us	
X	David Nunnally	Caroline Co – Planning & Comm Dev. Dept	dnunnally@co.caroline.va.us	(804) 633-4303
X	Stephen Manster	Town of Bowling Green	townmanager@townofbowlinggreen.com	(804) 633-6212
X	Alex Long	Town of Port Royal	along@ccim.net	(540) 371-8700
X	Heather Straughan	King George Co – Comm. Development Dept	hstraughan@co.kinggeorge.state.va.us	(540) 775-8550
X	Kevin W Utt	Fredericksburg – Bldg. & Dev Services	kwutt@fredericksburgva.gov	(540) 372-1080, x 374
	Ray Ocel, Jr	Fredericksburg- Planning & Comm Dev Dept	rocel@fredericksburgva.gov	(540) 372-1179, x 232
X	Debra Ward	Fredericksburg- Planning & Comm Dev Dept	dmward@fredericksburgva.gov	(540) 372-1179
	John Tippet	Friends of the Rappahannock	john_tippet@riverfriends.org	
X	Jenn Allen	Friends of the Rappahannock	jenn.allen@riverfriends.org	(540) 373-3448
	Diane Beyer	Tri-County/City Soil & Water Cons. District	jakeranger07@verizon.net	
X	Eldon James	Rappahannock River Basin Commission	Ejames7@earthlink.net	(540) 775-5422
X	Kevin Byrnes	GWRC	byrnes@gwregion.org	(540) 373-2890

2. **Background on Project:** Mr. Byrnes summarized the background on the project, indicating that the idea of GWRC coordinating and facilitating local review of the checklist had been proposed by Amber Forestier (Stafford). This activity is funded through a grant from the Virginia coastal zone management (CZM) program. Local staff time invested in conducting local review, writing drafts of ordinance amendments, traveling to and attending regional meetings qualifies as the in-kind staff time match required under the CZM grant to GWRC.

3. **Selection of Committee Chair:** Kevin Byrnes explained that, prior to the meeting, he had asked Amber Forestier if she would agree to serve as Phase III Review Committee Chair, in light of her background serving on the Checklist Development Advisory Committee. The suggestion was seconded by Kevin Utt and Ms. Forestier agreed to serve as Committee Chair.

4. **DCR: CBLAD Update On Phase III Checklist.....** David Sacks, Deputy Director
Chesapeake Bay Local Assistance Division

Mr. Sacks explained that the Department staff anticipates taking recommendations to the Chesapeake Bay Local Assistance Board in June 2009, suggesting that the Board not use Part B of the checklist as a means of determining consistency with Phase III requirements of the Regulations. They will recommend that the checklist be used for an advisory evaluation of local ordinances, that the scoring system be dropped, and that the evaluation of whether or not localities are achieving the required performance standards be incorporated into the Department's compliance evaluations of local governments. This would allow CBLAD staff to evaluate local compliance on a more flexible outcomes-based test rather than holding localities to specific requirements which may not be as effective or require greater administrative effort without demonstrable benefit in achieving Chesapeake Bay Act goals.

5. **GWRC CZM Project Deliverables**
From CZM Grant Proposal:

Goal: Facilitate local government development review staff in the review, streamlined revision and coordination of development ordinances in the Region to conform to requirements under Phase III of the Chesapeake Bay Act regulations.

“Project Description: GWRC staff will coordinate with regional group of local government environmental planning and development review staff, meeting on a bi-monthly basis, to develop regional recommendations for streamlined and regionally-consistent (to the maximum extent practicable)

revisions to local ordinances which are consistent with Chesapeake Bay Phase III guidelines. Where local circumstances make incorporation of Phase III guidelines difficult, GWRC staff will work with DCR Division of Chesapeake Bay Local Assistance and local government(s) to try to define local options and regional preferences for achieving compliance with the Phase III requirements, should review by the DCR Division of Chesapeake Bay Local Assistance determine local ordinances to be non-compliant. “

Product Format: One hardcopy and one digital report on regional recommendations to revise local ordinances. The report will also include summaries of the meetings held with the local planners and DCLBA staff and may include any materials generated for these meetings.”

6. Roundtable Discussion: Checklist Review Status

- City of Fredericksburg: only partial review performed
- Stafford Co: full review & scoring virtually completed, resulting in marginal passing score but more thorough review still needed.
- Spotsylvania Co: absent
- King George Co: only partial review performed
- Caroline Co: some review performed but Co staff have concerns about strict interpretation of some Section A requirements.
- Bowling Green: Only partial review done by CBLAD staff
- Port Royal: No review done.

7. Discussion of Checklist Template (Handout)

Mr. Byrnes introduced the re-formatted checklist template, noting that a custom version was produced for each community. The process would ask local staff to fill in the responses, entering code citations for instances of where local codes address the Phase III requirement. As each community completes the review of a section, they would forward it to GWRC to be incorporated into the regional checklist matrix, and the local code citation would be hyper-linked by GWRC staff to an on-line version of the codes to facilitate the exchange of code language and code requirements within and outside the Region.

8. **Orientation to FTP Site for Local Development Codes:** A central on-line storage site has been created to organize and make available all the local development codes. The Internet address is:
http://www.gwrcftp.org/Regional_Planning/Development%20Codes/

The FTP site is organized into folders labeled as:

Erosion & Sediment Control	Tree Preservation	Site Plans
Land Conservation	Utilities	
Stormwater Management	Wetlands	
Subdivisions	Zoning	

Within each folder is a pdf version of each community’s development code for review. These copies will be annotated with hyperlink “anchors” that connect them to the regional checklist matrix.

9. Supplying Local Review Updates to GWRC

- a. Tracking & Reporting Local Staff Time for In-Kind Match Documentation: Participating staff will be contacted privately by e-mail to obtain their annual salary figure to keep track of the value of their staff involvement in the regional review process.
- b. Periodic Transmittal of Updates Preferred to Compile Regional Matrix- Local staff are requested to send in bi-weekly updates to reflect gradual progress in the review process.
- c. Building Hyperlinks to Local Codes: As local progress reports are received GWRC will build hyperlinks between the regional matrix and the local codes.

10. Discussion of Review Process & Schedule Options

Scheduling Milestones:

April Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 2:○ 9:○ 17:● 24:●	May Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1:○ 9:○ 17:● 24:● 30:○	June Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 7:○ 15:○ 22:● 29:○
July Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 7:○ 15:○ 21:● 28:○	August Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 5:○ 13:○ 20:● 27:○	September Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 4:○ 11:○ 18:● 26:○
October Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 4:○ 11:○ 18:● 25:○	November Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 2:○ 9:○ 16:● 24:○	December Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 2:○ 8:○ 16:● 24:○ 31:○

Schedule Goals:

- 1) July 10: complete local checklists & forward to GWRC, compute local scores & complete regional matrix
- 2) July 16: Next Phase III Committee Meeting
- 3) August 13: identify short-comings/deficiencies of local ordinances & opportunities for recommendation for coordinated code revisions &/or legislative measures (e.g. tree protection ordinance authority like PD 8)
- 4) Draft regional CZM project report for Committee review: September 10th
- 5) Final report responding to Committee comments, Sept 30th.
- 6) October 15th: File final CZM project reports & financial statements

11. Committee Recommendations for Final Report: Upon completion of the first round review and comparison of local checklist scoring results, locality representatives can then identify priority areas for collaborative effort.

**FY 2008 CZM Technical Assistance Grant
Regional Coordination of Phase III Local Development Codes Review**

Meeting Minutes: July 16, 2009, 10:00 – 11:30 am

1. Welcome & Introductions..... Kevin Byrnes, GWRC

Attendance:

Adrienne Kotula, DCR-CBLAD

Shawn Smith, DCR-CBLAD

Heather Staughan, King George Co, Community Development Dept.

Amber Forestier, Stafford Co Planning Dept

Wanda Parrish, Spotsylvania Co Planning Dept

Kevin Byrnes, GWRC

Guests:

Patricia Kurpiel, Friends of Stafford Creeks

Becky Reed, PD 16 Rep, CBLA Board

2. **Demonstration on Accessing Regional Checklist Matrix**Kevin Byrnes, GWRC

Mr. Byrnes distributed a print-out copy of the draft regional matrix data along with a compact disc (CD) containing the matrix and all the source documents in Word doc format. He explained that the interactive matrix with hyperlinks of source references must be copied on to the user's computer hard drive for the hyperlinks to function properly. Mr. Byrnes demonstrated the technique of using the regional matrix to browse from one local ordinance to another.

3. **Discussion on Using Matrix: Next Steps**

- Desirability of Calculating Score?

The consensus of the group was that knowing what the local checklist score (compared to the original State target of 72) is useful to understand the differences across the region, serving as a starting point for any regional recommendations. Adrienne Kotula volunteered that after reviewing the Port Royal and Bowling Green ordinances, the Towns' checklist scores are 15 and 28, respectively. Amber Forestier indicated that Stafford's checklist score is 64. Wanda Parrish was not aware of how Spotsylvania scored by comparison. Mr. Byrnes asked each locality to complete the scoring exercise and report their results to GWRC for future discussion.

- Local Intentions on Meeting Deficiencies in 6 Mandatory Sec A. Requirements

Mr. Byrnes asked Adrienne Kotula to explain the CBLAD local compliance review process, current compliance status and the practical effect of being found to be "non-compliant". Ms. Koutla referenced the DCR-CBLAD website where the current compliance status and review schedule of all local governments is posted. (See http://www.dcr.virginia.gov/chesapeake_bay_local_assistance/local_status_contacts.shtml)

The following table summarizes local review compliance and the State review schedule:

Locality	Current Compliance Status	Last Compliance Review	Next Compliance Review
Caroline Co	Compliant	3/17/2008	3/17/2013
Town of Port Royal	Not fully compliant; I condition		Deadline: 9/30/2009
Town of Bowling Green	Compliant	12/10/2007	12/10/2012
King George Co	Compliant	3/23/2009	3/23/2014
City of Fredericksburg	Compliant	6/15/2009	6/15/2014
Spotsylvania Co	Compliant	3/17/2008	3/17/2013
Stafford Co	Compliant	6/19/2006	6/19/2011

Ms. Kotula indicated that the Dept staff work with communities having compliance issues to achieve performance progress; however if there is no reasonable progress being made, the case may be referred to the Office of the Attorney General of Virginia for enforcement action.

- Opportunities for Coordinated Regional Recommendations

*§ 15.2-961.1. Conservation of trees during land development process in localities belonging to a **non-attainment area for air quality standards. Recommendation for legislative action.***

Mr. Byrnes passed out copies of the above-referenced enabling legislation which only applies to localities in Planning District 8 and which has been the subject of some staff review in Spotsylvania Co. There was group consensus that PD 16 localities should pursue broadening the enabling authority to PD 16 localities, particularly if the region is designated “non-attainment” for ozone.

Mr. Byrnes explained that GWRC initial staff review focused on where local ordinance responses were more conspicuously absent (i.e. either zero or only 1 local code reference). This list includes:

- | | |
|---|---|
| • Clearing & Grading Requirements | • Minimizing Impervious Surface Areas |
| ○ Page 3, Q. #10 | ○ Page 7, Q#38, 41 |
| • Utility & Easement Requirements | • Redevelopment & Infill Development Concepts |
| ○ Page 4, Q#14 | ○ Page 8, Q#48, 51, 53 |
| • Sensitive Land Protection & Preservation Requirements | • Road Design Requirements |
| ○ Page 5, Q#20, 22, 27 & 28 | ○ Page 9, Q#56, 57, |
| • Vegetation & Tree Protection Requirements | • Pedestrian Pathways & Residential Driveways |
| ○ Page 6, Q#35 & 37 | ○ Page 9, Q#59, 60 |
| | • General Water Quality Provisions |
| | ○ Page 9, Sec C, Q#3, 4, & 6 |

The group discussed these options, noting that addressing impervious surface areas and water quality questions might be difficult in the middle of the public hearing process on the draft revised storm water management regulations. Ms. Forestier noted that internally Stafford has noted conflicts in definitions between different code sections which complicates the development process, using the term “open space” as an example. Shawn Smith suggested another area of regional opportunity is in adding or strengthening language to encourage preservation of indigenous plant species. Mr. Byrnes noted that the new VDOT secondary road standards may afford localities an opportunity to reduce impervious surface area in future subdivision standards.

4. DCR: Suggestions & Comments

Adrienne Kotula, Principal Environmental Planner
Chesapeake Bay Local Assistance Division

Ms. Kotula and Shawn Smith asked the group whether this checklist review process and the development of the regional comparative matrix was locally perceived as a useful process. The consensus of the group attending was that this process was helpful to localities to easily find what the development standards were in adjoining jurisdictions of the region. Ms. Reed agreed that she found the GWRC process very helpful and agreed that the goal of working to achieve greater consistency in development regulations (particularly as they might be changed in response to Chesapeake Bay guidelines) would be helpful to the general public and development community. CBLAD staff indicated that they wanted to recommend this process model to other regions and wanted to know what value, if any, how local staffs place on this approach.

5. Discussion of Next Steps in Review Process

The group agreed to review the draft regional matrix and reflect on what the local priorities might be for where the committee should concentrate its review and the joint development of regional recommendations and to submit suggestion to GWRC by the end of July in preparation for the August Phase III review committee meeting.

Mr. Byrnes asked local government staff to continue keeping track of local staff time on this project and to report regularly in order to track the accumulation of local in-kind match support for GWRC's CZM grant.

Next Meeting: Thursday August 13th, 10:00 – 11:30 am

Goal: August 13: identify short-comings/deficiencies of local ordinances & opportunities for recommendation for coordinated local code revisions &/or legislative measures (e.g. tree protection ordinance authority like PD 8)

**FY 2008 CZM Technical Assistance Grant
Regional Coordination of Phase III Local Development Codes Review**

Meeting Minutes: August 13, 2009, 10:00 – 11:30 am

1. Welcome & Introductions..... Kevin Byrnes, GWRC

Attendance:

Adrienne Kotula, DCR-CBLAD
David Sacks, DCR-CBLAD
Amber Forestier, Stafford Co Planning Dept
Dave Morgan, Spotsylvania Co Planning Dept
David Nunnally, Caroline Co Planning Dept
Jenn Allen, Friends of the Rappahannock
Kevin Byrnes, GWRC

2. **Review of Minutes of July 17th Meeting**

3. **Update on Regional Checklist Matrix**Kevin Byrnes, GWRC

Mr. Byrnes distributed a print-out copy of the revised regional matrix data. He explained that the highlighted hyperlinks on the handout represented links for which GWRC had not yet received the referenced ordinance(s). Mr. Byrnes explained for those not at the July meeting that the regional matrix with hyperlinks of source references and the referenced document collection must be copied on to the user's computer hard drive for the hyperlinks to function properly. Mr. Byrnes indicated that updated materials would be accessible from the GWTC ftp site by using this link:

http://www.gwrcftp.org/Regional_Planning/Development%20Codes.zip

The downloaded file must be uncompressed (i.e. "extracted") to the local hard drive to make the collection usable.

4. **Discussion on Using Matrix: Next Steps**

- Desirability of Calculating Score?
The consensus of the group from the July meeting was that calculating the "compliance score" was useful and all participating local government representatives agreed to supply their score results.
- Review of Potential Development Definitions for Regional Coordination

Mr. Byrnes explained that GWRC staff had reviewed the suggestions of the last meeting and feedback from local representatives and presented a series of sheets that compared selected definitions for possible review and the development of a regional "recommended" definitions, including:

- | | |
|---------------------|-----------------------------|
| 1. Open Space | 4. Public Use |
| 2. Floodplain | 5. Wetland Mitigation Bank |
| 3. Land Disturbance | 6. Secondary Road Standards |

The group agreed to work together on #1 - #5 of the above (see attached handouts with minutes)

5. **Discussion of Next Steps in Review Process**

For the next meeting on Sept 10th, the group agreed to send GWRC (by the end of August) any details from their development codes which would assist in a group comparison of alternative language for consideration in a work session on Sept 10th. GWRC staff will compile information received and try to send out a meeting packet in advance to allow local staff to conduct review before the meeting.

FY 2008 CZM Technical Assistance Grant: Regional Coordination of Phase III Local Development Codes Review

Meeting Minutes: October 25, 2009 10:00 am – 2:00 pm

Attendance:

Adrienne Kotula, DCR-CBLAD	Doug Morgan, Spotsylvania Co Planning Dept
David Sacks, DCR-CBLAD	John Euson, Spotsylvania Code Enforcement
Amber Forestier, Stafford Co Planning Dept	David Nunnally, Caroline Co Planning Dept
Kevin Utt, City of Fredericksburg	Jenn Allen, Friends of the Rappahannock
Stephen Manster, Bowling Green	Heather Straughan, King George Co
Mike Lott, Stafford Co Planning Dept	Kevin Byrnes, GWRC

1. Review of minutes of August 13th meeting: Minutes accepted by consensus.

2. Discussion & Reaching Consensus on **Development Definitions**

Indigenous Species: "...Vegetation (i.e. plant species and/or cultivars thereof) native to the George Washington Planning District (i.e. coastal and/or Piedmont zones of Virginia)"

- Consensus agreement that localities should recognize a standardized list of invasive & non-native species that cause harm
- Local recommendations on landscaping plan review should be sensitive to the context & setting on the site

Land Disturbance: "Any pre-development activity which includes removal of vegetation, the breaking of the ground surface or changing of the topography of land either through the excavation, redistribution or deposition of soil or other earthen material."

- Acknowledge temporal consideration?

Regulatory or Policy Issues:

- Note inconsistencies between state regulations (e.g. E & S and Stormwater law)
- Environmental impacts of land disturbance somewhat related to allowances under a variety of exemptions
- Possible consideration of bringing agriculture and silviculture into consistent compliance (as other land development) with Chesapeake Bay Act?

Floodplain: "Those land areas as so designated in the latest FEMA/FIRM 100 year flood maps applicable to any area. "

Wetland Mitigation Bank: "...an area of land on which wetlands are to be restored, created, enhanced or preserved in a manner that will qualify the land for the purpose of engaging in the sale, exchange, or transfer of wetlands mitigation credits required by federal or state authorities to compensate for adverse impact to wetlands. This definition shall not include wetlands mitigation banks owned and controlled by the United States, the Commonwealth of Virginia, any political subdivision of the Commonwealth or any department or agency thereof."

Open Space: "Conservation (or Natural) Open Space: "undeveloped land or water left in undisturbed, open condition or undeveloped area to be maintained in its naturally vegetated state."

3. Lunch (Pizza & Soft Drinks)

4. DCR-CBLAD Presentation on CBLA Compliance Review & Future Use of Checklist (See Appendix B1)

Project Schedule:

- GWRC will produce rough draft of project report by 9/21/09
- Local Review Comments back to GWRC by 9/24/09
- Report Completion by 9/30/09...last day of federal fiscal year.



Product #3: Promotion of the Virginia Green Program in the George Washington Region

GWRC staff (and interns) collaborated with the DEQ Office of Pollution Prevention, local tourism program organizers, economic development entities and chambers of commerce, area businesses, interested non-profit organizations in the Region to help educate the community on and promote local business participation in DEQ's Virginia Green program and to advance the Region's visibility as a "green" vacation destination and reduce Regional eco- and carbon footprints.

Product Deliverables: Program brochure (see Appendix B) outlining the advantages of enlisting in the Virginia Green program. One hardcopy and one digital report will be submitted and will identify project stakeholders and include a summary of the coordinated project activities which occurred during the grant year, a log of community organizations and audiences that GWRC staff have met with and a directory listing local business that have enrolled in the Virginia Green program.

Project Report

Part I: Meeting with Karen Hedelt, Manager
Economic/Tourism Development
City of Fredericksburg
November 20, 2008

Laurel Hammig & GWRC intern Brittany Baker met with Ms. Hedelt who explained that she had initially presented the VA Green program to the local hotels last spring (2008). This group is primarily hotels. The main concerns were additional costs, additional labor. She believes that the businesses need more education about the program and its economic benefits.

Ms. Hedelt suggested that we present information at one of the monthly Fredericksburg Regional Hospitality Council meetings. She suggested that we bring materials for the businesses to take, talk to people after the meeting to encourage them about the program, collect business cards and follow up with each business. Our POC for this is Colleen Hairston, who works for Travel Host magazine. (A list of participating hotels can be found: <http://www.travelhost.com/jsp/markethotels.jsp>) Her phone number is 540-735-6373 and her e-mail is colleen@travelfredericksburg.com

Ms. Hedelt suggested working with one restaurant or business to create a success story that can be shared with other businesses. UMW might be one possibility because their on-campus eatery recently became part of the VA Green program.

Ms. Hedelt shared that Kalahari has many Green Initiatives. See: <http://www.kalahariresorts.com/va/information/green/>.

Ms. Hedelt was not aware of any effort to contact the Expo Center about the Virginia Green Program

Next Steps:

1. Contact The Fredericksburg Regional Hospitality Council to present at one of their meetings.
2. Create presentation and materials for business to educate them on the program and its benefits.
 - a. Look at requirements for businesses and outline economic benefits
 - b. Contact Hotels/businesses who have been a part of the VA Green program and outline their successes.
3. Create publicity about businesses that are already a part of the VA Green program in Fredericksburg.
4. Partner with an interested business to create a success story to promote VA Green program in Fredericksburg.



Part 2: Outreach to Fredericksburg Expo & Conference Center



Fredericksburg Expo & Conference Center (<http://www.fredericksburgexpocenter.com/>)

| 2371 Carl D. Silver Parkway

Fredericksburg VA 22401

Phone: 540.548.5555 Fax: 540.548.0552

Contact: [Laurie Cassel](#), Director of Convention Services
540.548.5555 ext 105

The **Fredericksburg Expo and Conference Center**, owned and operated by the Ballantine Management Group, opened its doors on January 28, 2006. The Expo Exhibition Floor, Meeting Rooms and Grand Ballroom are capable of being utilized for a variety of events and types of consumer shows, in the 116,000 square-foot venue that has 80,000 square feet of exhibition space, a 15,000-square-foot conference center with 11 meeting rooms, and a 10,000-square-foot ballroom that can be subdivided into six separate rooms.

GWRC staff attempted to contact on-site staff on several occasions by telephone and e-mail to arrange a meeting to encourage the facility management to consider enrolling in the Virginia Green program. None of the calls or e-mails were returned. GWRC will continue to work with the Expo Center staff and surrounding hotels that have been recently opened to encourage their voluntary enrollment in the Virginia Green program.

Part 3: Outreach to Local Hotel Operations

GWRC prepared a mailing consisting of an introductory letter, background information on the GWRC and its Green Government Commission and an application form to apply to the Commonwealth to join the Virginia Green program. Out of the initial mailing to 50 hotel operators, 2 packages were returned by the Post Office as undeliverable addresses. One existing Virginia Green program participant (a local bed and breakfast inn) was asked for comments about their business experience with the Virginia Green program. GWRC staff also made direct contact with the manager (Mr. Tony Kala) of the new Old Town Fredericksburg Marriott Courtyard to arrange an appointment to recruit the new hotel in the program. Mr. Kala has expressed positive interest, but a final meeting to discuss the program has not yet occurred. (See Appendix B)

Through GWRC's regional Green Waste Sub-Committee, the Sub-Committee chairman (Mr. John Broughton) has initiated follow-up phone calls to urge local hotel participation in the program. Moreover, Mr. Broughton has initiated with the Kalahari theme park¹ (<http://www.kalahariresorts.com/va/>) developers to explore the details of their recycling and low-impact development business operations plan². As a major tourism attraction locating very close to the Expo Center, it is hoped that businesses that adjoin Kalahari will ultimately match the theme park's commitment to sustainable, low impact business operations.

¹ **Kalahari Virginia Overview:** The Kalahari Resort coming to Fredericksburg will offer the same kind of indoor water park fun as the chain's other African-themed resorts in Wisconsin Dells and Sandusky, Ohio. The existing Kalaharis are among the industry's largest indoor water parks and offer a wild array of water park attractions. When it opens in December 2019, the enormous Virginia park will rival its sister properties in size and scope. In addition to the water park attractions, the Kalahari Fredericksburg will offer an arcade with redemption games, on-site restaurants, a fitness center, 100,000 sq. ft. of conference space, and a spa to pamper and help get the wrinkles out of waterlogged guests. The kid-friendly accommodations will include 700 guest rooms and suites.

² See on the Internet: <http://www.kalahariresorts.com/va/information/green/>



FOR IMMEDIATE RELEASE

For more information, contact:
Shannon McCarthy, (612) 345-5411
smccarthy@leumpr.com

**KALAHARI RESORTS CONTINUES TO LEAD THE HOTEL INDUSTRY WITH
INNOVATIVE “GREEN” OPERATIONS**

- New AquaRecycle System to conserve 26 million gallons of water each year -

WISCONSIN DELLS, Wisc. (April 16, 2008) –Kalahari Resorts’ long-standing commitment to energy efficient operations continues as it adds the AquaRecycle system, a laundry water recycling and filtration system which will allow Kalahari Resorts to reuse 70 percent of its laundry water. The AquaRecycle system’s chemical-free filtration and treatment recycle process will provide clean, disinfected and pre-heated water to the laundry systems at Kalahari Resort properties in Wisconsin Dells, WI and Sandusky, OH and eventually a third resort in Fredericksburg, VA.

Home to a 740-room hotel in Wisconsin and an 884-room hotel in Ohio, Kalahari Resorts estimates the AquaRecycle system, which is expected to be operating by June 1, to:

- Conserve 26 million gallons of drinking water per year.
- Prevent 26 million gallons of waste from returning to the environment.
- Prevent more than 8,400 pounds of total Organic Carbon from being released to a waste water treatment plant each year.
- Prevent more than 400 tons of Green House Gases from entering the atmosphere in the form of CO₂.
- Reduce water and sewer costs by 70 percent and energy costs by up to 50 percent.

Winner of the 2006 Wisconsin Partners for Clean Air Recognition Award, Kalahari Resorts began exploring options for energy efficiency for its properties in 2005.

“The effectiveness of our energy efficient operations has been impressive and we remain committed to adding measures that will save energy and protect our environment,” said Todd Nelson, president and owner of Kalahari Resorts which are home to two of America’s largest indoor waterparks. “As we design our third property in Fredericksburg, VA, we are researching a wide array of state-of-the-art green initiatives to implement.”

--more--

In addition to its new AquaRecycle system, Kalahari Resorts green initiatives include:

WI

- A recent installation of the 103-panel solar hot water system, Wisconsin's largest solar hot water system, to provide approximately 11,800 therms per year of hot water which heats 60 percent of the hot water utilized by the resort's laundry facility.
- Installation of Entergize Energy Control Systems in guest rooms to control energy use based on guest presence. For example, when a key card is removed from wall-mounted slot, lights turn off and HVAC goes into standby mode.

OH

- Installation of Texlon transparent roof system which allows natural light in to help heat America's largest indoor waterpark.
- Installation of ozone laundry system which allows for faster washing and drying using less chemicals and less energy.
- Partnering with a local landscaping company to implement a food waste composting system.

Both Properties

- Installation of low-flow showerheads in guest rooms, reducing water consumption by more than two million gallons per year.
- Installation of massive fans in the waterpark to lower heating costs by pushing warm air near the ceiling to floor level.
- Installation of HVAC energy management system.
- Installation of 200 indoor waterpark lighting with fluorescent fixtures.
- Installation of LED exit signs.
- Installation of 15-watt compact fluorescent bulbs in 5,500 fixtures, saving 294,000 kWh per year.
- Installation of motion-sensored lights in public areas of the resort.
- Installation of low-flow dishwasher sprayheads.
- Reducing oven pre-heating and combining underused coolers.

Kalahari Resort is also in the process of installing high-efficiency boilers in its indoor waterparks and exploring geothermal heat recovery and the use of wind turbines.

About Kalahari Resorts

Kalahari Resorts, located in Wisconsin Dells, WI and Sandusky, OH, are home to two of the largest indoor waterparks in the U.S. In addition, both resorts feature outdoor waterparks, spas, a collection of unique retail shops, a plethora of dining options and variety of guest and suite room options. For reservations and guest information, call (877) 525-2427 or visit www.KalahariResorts.com. To review Kalahari Resort's electronic press kit, go to www.kalahariresortsgobig.com.

Virginia Green...

Based on 3 Principles

1. **Virginia's Natural Resources are its #1 Tourism Attraction!** The natural beauty of our beaches, mountains, and clean water is what brings people to Virginia.
2. **Visitors to Virginia are increasingly more Environmentally-Aware.** And they care about the environment — even while on vacation!
3. **"Green" can actually mean \$Green\$!** Virginia Green supports the use of practical measures which help the environment AND reduce costs!

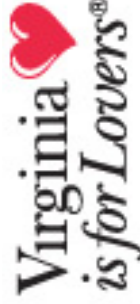


Virginia Green is sponsored in partnership by:

Virginia Dept. of Environmental Quality



Virginia Tourism Corporation



Virginia Hospitality & Travel Association



The George Washington Regional Commission is a Partner Organization and can assist when applying to the

Virginia Green Program.

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Ph (540) 373-2890

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**Virginia's Campaign
to
Promote
Environmentally-
Friendly
Practices in ALL
Aspects of Virginia's
Tourism Industry!**



Voluntary and Free!



Recognition & Assistance to participants.

Criteria and guidance for each sector of

tourism.

All participants make commitments to

Recycle and Reduce Energy and Water

consumption!

Tourism Sectors

Lodging
Restaurants
Campgrounds
Golf Courses
Welcome Centers
Travel Organizations
Parks
Green Events
Rest Areas
Wineries
Attractions
Conference & Convention Centers
Trails

Want to Become a Virginia Green participant?

Go to:

www.deq.virginia.gov/p2/viriniagreen

and fill out the application and checklist that corresponds to your sector.

Questions? Contact:

viriniagreen@deq.virginia.gov or

hammig@gwregion.org

Benefits of joining

Facilities who join Virginia Green are those who realize that Virginia's tourism industry is closely linked to our beautiful Natural Resources. We all receive many benefits from protecting our environment, but here are some benefits that come directly from participating in Virginia Green!

- Listed on Virginia Green website and searchable through Virginia is for Lovers (www.Virginia.org/green)
 - Virginia Green Certificate for display at your facility
 - Use of Virginia Green Logo
 - Virginia Green profile of your facility
 - Increase patronage by environmental groups and environmentally-aware customers
- Save \$\$\$ through cost savings measures

Plan Your Green Vacation!

Visitors to Virginia can Go Green by

searching for Virginia Green participants on the Virginia is for Lovers website—

www.virginia.org/green

You can plan your entire environmentally-friendly vacation!

Virginia
is for Lovers®



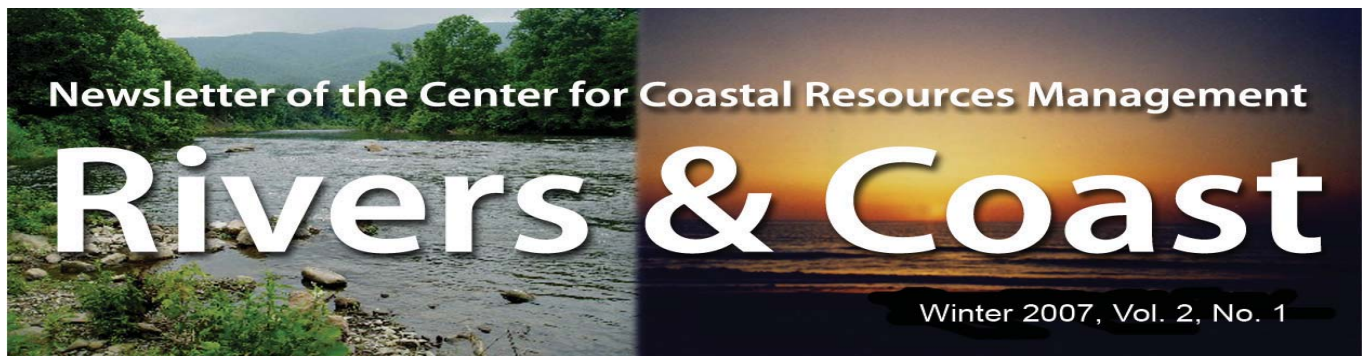
Product #4: Community Viz Technical Assistance to Port Royal and King George

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King George Co Project Report...see Report under GWRC's CZM grant Task 12.02	N/A

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In this issue...

We introduce the basis for Integrated Management of tidal shorelines. Integrated management promotes a holistic view of the shoreline, rather than the piecemeal approach encouraged by multiple jurisdictions.

We describe ecosystem service models that provide a logical framework for:

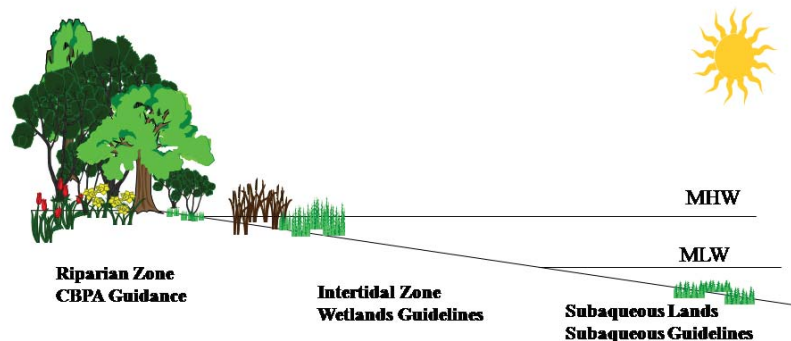
- *evaluation of proposed project impacts;*
- *identification of design options;*
- *assessment of impact tradeoffs; and*
- *coordination of regulatory decisions.*

We provide examples of the information these models can provide managers and suggest ways in which managers can use these models to preserve or enhance water quality and habitat functions along shorelines.

Introduction to the Integrated Guidance Concept

Tidal shorelines are the site of complex interactions between terrestrial and aquatic systems. These areas have values that far outweigh their relative size in the larger ecosystem. On tidal shorelines, each section of the shoreline is managed independently. The result of this piecemeal shoreline management is that tradeoffs in public and private benefits are frequently not optimized for the entire shoreline system.

To reduce the cumulative and secondary impacts of activities within the multiple jurisdictions and management programs affecting the littoral and riparian zones, better coordination and integration of policies and practices is necessary. Therefore, we have developed a model that incorporates aspects of the entire cross-shore environment, from upland development to subaqueous habitats. When making decisions, it is important to optimize water quality and habitat functions across the entire cross-shore environment. The Integrated Guidance model can be used to identify existing positive attributes of the shoreline and potential areas for improvement. Special emphasis should be placed on the preservation or enhancement of attributes (such as riparian vegetation and wetlands) that contribute to both habitat and water quality).



In everyday usage, the term “model” refers to a simple representation of something real. The key point involving models is the assumptions that are used. Models may not take into account all the factors at work. When confronted with a model prediction, make sure the assumptions used are stated up front and have a basis in fact. The best models will be backed by research and limit the number of assumptions.

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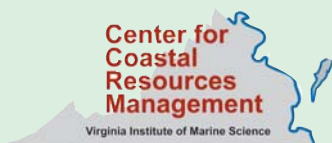
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VMRC (aerial)

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Virginia Coastal Zone
MANAGEMENT PROGRAM

Ecosystem Services Assessment Model

The model integrates water quality and habitat features with shoreline risk through a cross-section of the coastal landscape, from the upland through the subaqueous zone. In each zone, we have identified characteristics (such as percentage of tree cover) that affect water quality and habitat across the shoreline.

Water quality and habitat functions were modeled separately, because landscape elements may impact the two services independently. Shoreline risk was also modeled separately because it represents a potential threat to the shoreline, not a service provided by the shoreline.

Each element and its known impacts on water quality and habitat services and shoreline risk are described on the following pages.

Water Quality Model Elements

1) Upland Landuse

Upland areas contribute to nonpoint source pollution through contaminated upland runoff and groundwater.

- Natural landuse (wetland, scrub-shrub, and forest) contributes the least excess nutrients while also removing pollutants and retaining sediment from adjacent upland areas.
- Agricultural landuse has the potential to retain sediments, however may be associated with excess nutrient inputs.
- Developed landuse offers the lowest potential for sediment retention and nutrient removal and may increase contaminated surface runoff.

2) Riparian Landuse

Riparian areas provide capacity for mitigating nonpoint source pollution by reducing upland runoff and intercepting groundwater.

- Natural riparian areas have vegetation associated with high buffering capacity.
- Developed and agriculture riparian areas have reduced buffering capacity due to lack of vegetation and/or excess nutrient inputs.
- Industrial riparian areas lack buffering value and have potential for increased pollution associated with industrial sites.

3) Bank Cover and Stability

- Total cover by vegetation and structures helps to stabilize the bank, reducing erosion and sediment introduction to the waterway.

Blue and Green Infrastructure

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December 3, 2008

What is Blue Green Infrastructure?

An interconnected network of protected land and water that sustains air and water resources, maintains natural ecological processes, supports native species, and contributes to the health and quality of life for communities

2008 GWRC CZM Program Grant

- Review data gaps of VCLNA and other data sets
- Meeting with GWRC, local planning staff, and local GIS staff to access existing comprehensive plans' use of VCLNA (if any) and other State natural resource data
- Produce an initial draft regional conservation corridor map
 - Blue-green infrastructure map for each locality
 - Composite regional map illustrating continuity of identified conservation corridors

Virginia Conservation Lands Needs Assessment (VCLNA)

- Virginia Dept. of Conservation and Recreation, Dept. of Natural Heritage
- Mission: Identify, protect, and conserve Virginia's biological diversity
- Seven VCLNA models to help access what resources exist: ecological, cultural, vulnerability, forest economics, recreation, water quality, agriculture

Ecological Model

- Data includes:
 - Virginia Natural Landscape Assessment (VaNLA)
 - Products from the Wildlife Action Plan
 - Virginia Biodiversity Assessment
 - Other Natural Heritage data
- VaNLA is a landscape-scale GIS analysis for identifying, prioritizing, and linking natural habitats in Virginia.
- Prioritized Outstanding-General

Cultural Assets

- Partnered with Dept. of Historic Resources
- Data includes:
 - National Historic Districts
 - National Historic Landmarks
 - National Historic Register
 - State Inventoried Sites
 - American Indian Areas

Vulnerability Model

- Developed a growth prediction model to provide a landscape view of growth trends in Virginia.
- Developed an Urban Growth Prediction Model, a Suburban Growth Prediction Model, a Rural Growth Prediction Model, and a composite model.
- Data layers include:
 - Land use
 - Slope
 - Census information
 - Impervious surface data
 - Road density
 - Parcel information
 - Rural-urban commuting area codes
- All 4 models available upon request

Forest Economics

- Maps the relative value of forest lands with economic value
- Data layers include:
 - Soil productivity
 - Forest land fragmentation
 - Riparian & wetland feature
 - Steep slopes
 - Rare/threatened/endangered species
 - Census information
 - Forest land use taxation values
- Partnered with Dept. of Forestry

Recreation Model

- Map the relative recreation value of lands in Virginia based on input model parameters
- Partnered with Dept. of Game and Inland Fisheries, DCR Division of Planning and Recreation Resources
- Data includes:
 - Access points
 - Trails
 - Parks
 - Beaches
- Analyzed on service radii and travel time

Watershed Integrity Model

- Identify the relative value of lands as they contribute to water quality and watershed integrity
- Data includes:
 - Proximity to water
 - Erodible soils
 - Slope
 - Impervious surface
 - Forest fragmentation
 - Stream density
 - Municipal water supplies
- Partnered with Dept. of Environmental Quality, DCR Division of Soil and Water, Dept. of Forestry, and VCU

Agricultural Model

- Identify the relative agricultural productivity and sustainability value of lands in Virginia.
- Data includes:
 - Soils information
 - Land cover
 - Slope
 - Wildlife Action Plan derivatives
- Partnered with Dept. of Agriculture, American Farmland Trust, and Virginia Tech University

Information Accessibility

- By subscription: DCR Natural Heritage Data Explorer
http://www.dcr.virginia.gov/natural_heritage/nhdeinfo.shtml
- Virginia Land Conservation Data Explorer
www.vaconservedlands.org
- Coastal GEMS
<http://www.deq.state.va.us/coastal/coastalgems.html>
- Files can be bundled and emailed

Future Meeting (s)

- Possible future technical meeting conducted by DCR if there is interest
- Meeting to discuss the use of the VCLNA and other state data in local comprehensive planning process
 - Desired outcome: evaluation report
- GI Local Map Production
- Regional GI Composite Map

Information from...

- http://www.yorkwatershed.org/business/green_infrastructure/VNH/VNH.htm
- http://www.dcr.virginia.gov/natural_heritage/documents/VCLNA_web_final.pdf

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September 30, 2009

Tour of LID Installations in Stafford County

Led by John Tippet, Executive Director, Friends of the Rappahannock

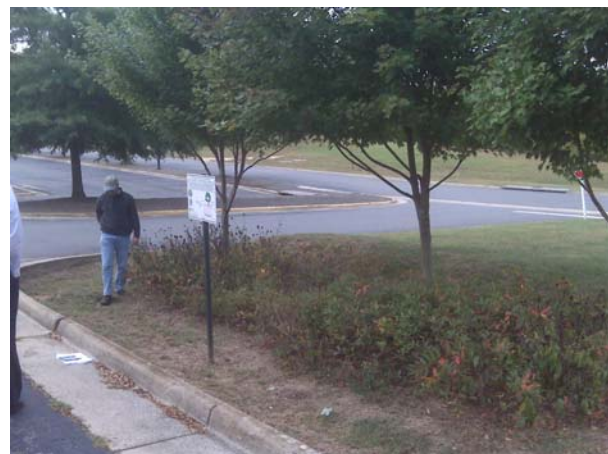
(photos courtesy of Dick Folger)

Attendees: Chris and Dick Folger, Doris Whitfield, Patricia Kurpiel, Joe Brito, Grant Woodwell, Steve Hubble, Laurel Hammig

Visited 3 sites at the Stafford County Government Center:

Bio-retention Garden in Fleet Parking Lot

An approximately 750 square feet area that filters stormwater runoff through a soil mixture that helps remove nutrients and pollution and mimic pre-development hydrology by directing the water back into the ground.



Bio-retention Area is Small Parking Lot Island

Similar concept to the garden in the fleet parking lot but in a smaller area for a smaller watershed.

Filtrerra

The Filterra system is located adjacent to an existing storm drain drop inlet in a small rescue squad parking lot. The Filterra Bioretention Systems Company designs storm-water filtration systems that naturally remove pollution to meet or exceed federal standards. The filtration system is a concrete container that uses a tree or shrub as well as different layered filters to remove pollutants from runoff through natural physical, chemical, and biological processes.

It is installed underground so it looks like a tree planted on top of a regular curbside cut drainage system, however the water leaving the system has much less total suspended sediments, phosphorous, nitrogen, heavy metals, bacteria, oil, and grease.



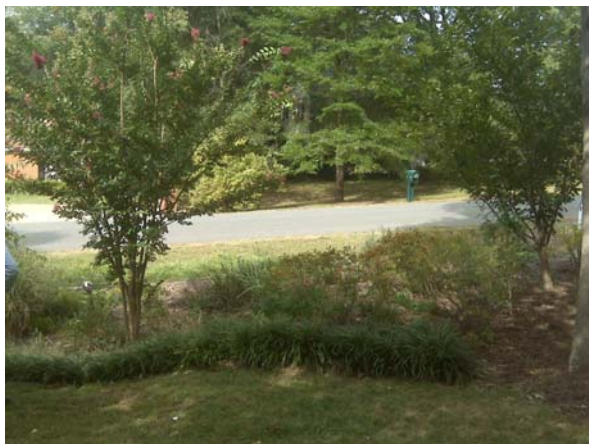
Visited 1 Residential Site in Woodlawn Subdivision:

French Drain

A French drain is an underground trench that is filled in with gravel to promote infiltration and then covered with topsoil and vegetation. It allowed the homeowner to redirect water away from a waterlogged area and into the biofilter.

Bioretention or 'Rain Garden'

Construction was similar to Stafford County's Bioretention garden.



Water Quality Swale

The water quality swale is a vegetated open channel designed to treat storm-water runoff. It contains specific types of vegetation over the top of engineered soil that acts as a filter. The swale treats and slows runoff, decreases erosion, and promotes infiltration. The project received special permission from VDOT because rip rap is the norm in this situation.



Next Steps:

Follow up with the school systems about possible LID projects.